IONOSPHERIC DATA

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U. S. DEPARTMENT OF COMMERCE
NATIONAL BUREAU OF STANDARDS
CENTRAL RADIO PROPAGATION LABORATORY
WASHINGTON, D. C.

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CONTENTS

SYMBOLS, TERMINOLOGY, CONVENTIONS

Beginning with data reported for January 1952, the symbols, terminology, and conventions for the determination of median values used in this report (CRPL-F series) conform as far as practicable to those adopted at the Sixth Meeting of the International Radio Consultative Committee (C.C.I.R.) in Geneva, 1951. Excerpts concerning symbols and terminology from Document No. 626-E of this Meeting are given on pages 2-7 of the report CRPL-F89, "Ionospheric Data," issued January 1952. Reprints of these pages are available upon request.

Beginning with data for January 1945, median values are published wherever possible. Where averages are reported, they are, at any hour, the average for all the days during the month for which numerical data exist.

The following conventions are used in determining the medians for hours when no measured values are given because of equipment limitations and ionospheric irregularities. Symbols used are those given in Document No. 626-E referred to above.

a. For all ionospheric characteristics:

Values missing because of A, C, F, L, M, N, Q, S, or T are omitted from the median count.

b. For critical frequencies and virtual heights:

Values of foF2 (and foE near sunrise and sunset) missing because of E are counted as equal to or less than the lower limit of the recorder. Values of h'F2 (and h'E near sunrise and sunset) missing for this reason are counted usually as equal to or greater than the median. Other characteristics missing because of E are omitted from the median count.

Values missing because of D are counted as equal to or greater than the upper limit of the recorder.

Values missing because of G are counted:

1. For foF2, as equal to or less than foF1.
2. For h'F2, as equal to or greater than the median.

The symbol W is included in the median count only when it replaces a height characteristic. This practice represents a change from that listed in issues previous to CRPL-F78.

Values missing for any other reason are omitted from the median count.

c. For MUF factor (M-factors):

Values missing because of G or W are counted as equal to or less than the median.

Values missing for any other reason are omitted from the median count.

d. For sporadic E (Es):

Values of fEs missing because of E or G (and B when applied to the daytime E region only) are counted as equal to or less than the median foE, or equal to or less than the lower frequency limit of the recorder.

Values of fEs missing for any other reason, and values of h'Es missing for any reason at all are omitted from the median count.

Beginning with data for November 1945, doubtful monthly median values for ionospheric observations at Washington, D. C., are indicated by parentheses, in accordance with the practice already in use for doubtful hourly values. The following are the conventions used to determine whether or not a median value is doubtful:

1. If only four values or less are available, the data are considered insufficient and no median value is computed.

2. For the F2 layer, if only five to nine values are available, the median is considered doubtful. The E and F1 layers are so regular in their characteristics that, as long as there are at least five values, the median is not considered doubtful.

3. For all layers, if more than half of the values used to compute the median are doubtful (either doubtful or interpolated), the median is considered doubtful.

The same conventions are used by the CRPL in computing the medians from tabulations of daily and hourly data for stations other than Washington, beginning with the tables in IRPL-F18.

The tables and graphs of ionospheric data are correct for the values reported to the CRPL, but, because of variations in practice in the interpretation of records and scaling and manner of reporting of values, may at times give an erroneous conception of typical ionospheric characteristics at the station. Some of the errors are due to:

a. Differences in scaling records when spread echoes are present.

b. Omission of values when foF2 is less than or equal to foF1, leading to erroneously high values of monthly averages or median values.

c. Omission of values when critical frequencies are less than the lower frequency limit of the recorder, also leading to erroneously high values of monthly average or median values.

These effects were discussed on pages 6 and 7 of the previous F-series report IRPL-F5.

Ordinarily, a blank space in the fEs column of a table is the result of the fact that a majority of the readings for the month are below the lower limit of the recorder or less than the corresponding values of foE. Blank spaces at the beginning and end of columns of h'F1, foF1, h'E, and foE are usually the result of diurnal variation in these characteristics. Complete absence of medians of h'F1 and foF1 is usually the result of seasonal effects.

The dashed-line prediction curves of the graphs of ionospheric data are obtained from the predicted zero-muf contour charts of the CRPL-D series publications. The following points are worthy of note:

a. Predictions for individual stations used to construct the charts may be more accurate than the values read from the charts since some smoothing of the contours is necessary to allow for the longitude effect within a zone. Thus, inasmuch as the predicted contours are for the center of each zone, part of the discrepancy between the predicted and observed values as given in the F series may be caused by the fact that the station is not centrally located within the zone.

b. The final presentation of the predictions is dependent upon the latest available ionospheric and radio propagation data, as well as upon predicted sunspot number.

c. There is no indication on the graphs of the relative reliability of the data; it is necessary to consult the tables for such information.

The following predicted smoothed 12-month running-average Zürich sunspot numbers were used in constructing the contour charts:

Month	Predicted Sunspot Number								
	1953	1952	1951	1950	1949	1948	1947	1946	1945
December	15	33	53	86	108	114	126	85	38
November	16	38	52	87	112	115	124	83	36
October	17	43	52	90	114	116	119	81	23
September	18	46	54	91	115	117	121	79	22
August	18	49	57	96	111	123	122	77	20
July	20	51	60	101	108	125	116	73	
June	21	52	63	103	108	129	112	67	
May	22	52	68	102	108	130	109	67	
April	24	52	74	101	109	133	107	62	
March	27	52	78	103	111	133	105	51	
February	29	51	82	103	113	133	90	46	
January	30	53	85	105	112	130	88	42	

WORLD-WIDE SOURCES OF IONOSPHERIC DATA

The ionospheric data given here in tables 1 to 48 and figures 1 to 96 were assembled by the Central Radio Propagation Laboratory for analysis and correlation, incidental to CRPL prediction of radio propagation conditions. The data are median values unless otherwise indicated. The following are the sources of the data in this issue:

Republica Argentina, Ministerio de Marina:
Buenos Aires, Argentina
Decepcion I.

Australian Department of Supply and Shipping, Bureau of Mineral Resources, Geology and Geophysics:
Watheroo, Western Australia

University of Graz:
Graz, Austria

Meteorological Service of the Belgian Congo and Ruanda-Urundi:
Leopoldville, Belgian Congo

Defence Research Board, Canada:
Churchill, Canada
Fort Chimo, Canada
Ottawa, Canada
Prince Rupert, Canada
Resolute Bay, Canada
St. John's, Newfoundland
Winnipeg, Canada

Radio Wave Research Laboratories, National Taiwan University, Taipeh, Formosa, China:
Formosa, China

Danish National Committee of URSI:
Godhavn, Greenland

Institute for Ionospheric Research, Lindau Uber Northeim, Hannover, Germany:
Lindau/Harz, Germany

Icelandic Post and Telegraph Administration:
Reykjavik, Iceland

Ministry of Postal Services, Radio Research Laboratories, Tokyo, Japan:
Akita, Japan
Tokyo (Kokubunji), Japan
Wakkanai, Japan
Yamagawa, Japan

Norwegian Defence Research Establishment, Kjeller per Lillestrom, Norway:
Oslo, Norway
Tromso, Norway

South African Council for Scientific and Industrial Research:
Capetown, Union of South Africa
Johannesburg, Union of South Africa

Research Laboratory of Electronics, Chalmers University of Technology, Gothenburg, Sweden:
Kiruna, Sweden

Research Institute of National Defence, Stockholm, Sweden:
Upsala, Sweden

Royal Board of Swedish Telegraphs, Radio Department, Stockholm, Sweden:
Lulea, Sweden

Post, Telephone and Telegraph Administration, Berne, Switzerland:
Schwarzenburg, Switzerland

United States Army Signal Corps:
Adak, Alaska
Okinawa I.
White Sands, New Mexico

National Bureau of Standards (Central Radio Propagation Laboratory):
Anchorage, Alaska
Guam I.
Huancayo, Peru (Instituto Geofisico de Huancayo)
Maui, Hawaii
Narsarssuak, Greenland
Panama Canal Zone
Point Barrow, Alaska
Puerto Rico, W. I.
San Francisco, California (Stanford University)
Washington, D. C.

HOURLY IONOSPHERIC DATA AT WASHINGTON, D. C.

The data given in tables 49 through 60 follow the scaling practices given in the report IRPL-C61, "Report of International Radio Propagation Conference," pages 36 to 39, and the median values are determined by the conventions given above under "Symbols, Terminology, Conventions." Beginning with September 1949, the data are taken at Ft. Belvoir, Virginia.

IONOSPHERIC STORMINESS AT WASHINGTON, D.C.

Table 61 presents ionosphere character figures for Washington, D. C., during December 1953, as determined by the criteria given in the report IRPL-R5, "Criteria for Ionospheric Storminess," together with Cheltenham, Maryland, geomagnetic K-figures, which are usually covariant with them.

SUDDEN IONOSPHERE DISTURBANCES

Table 62 shows that no sudden ionosphere disturbances were observed at Ft. Belvoir, Virginia, during the month of December 1953. Table 63 lists the sudden ionosphere disturbances observed in the Netherlands for October 1953.

RADIO PROPAGATION QUALITY FIGURES

Tables 64a and 64b give for November 1953 the radio propagation quality figures for the North Atlantic area, CRPL advance and short-term forecasts, a summary geomagnetic activity index and sundry comparisons, specifically as follows:

(a) radio propagation quality figures, separately for each 6-hour interval of the Greenwich day, viz., 00-06, 06-12, 12-18, 18-24 hours UT (Universal Time or GCT).
(b) whole-day radio quality indices (beginning October 1952). Each index is a weighted average of the four quarter-day Q-figures, before rounding off, with half weight given to quality grades 5 and 6. This procedure tends to give whole-day indices suitable for comparison with whole-day advance forecasts which designate whenever possible the days when significant disturbance or unusually quiet conditions will occur.
(c) short-term forecasts, issued by CRPL every six hours (nominally one hour before 00^h, 06^h, 12^h, 18^h UT) and applicable to the period 1 to 13 (especially 1 to 7) hours ahead. Note that new scoring rules have been adopted beginning with October 1952 data.
(d) advance forecasts, issued semiweekly (CRPL-J reports) and applicable 1 to 3 or 4 days ahead, 4 or 5 to 7 days ahead, and 8 to 25 days ahead. These forecasts are scored against the whole-day quality indices.
(e) half-day averages of the geomagnetic K indices measured by the Cheltenham Magnetic Observatory of the U. S. Coast and Geodetic Survey.
(f) illustration of the comparison of short-term forecasts with Q-figures and also with estimates of radio quality based on CRPL observations only.
(g) illustration of the outcome of advance forecasts (1 to 3 or 4 days ahead) and, for comparison, the outcome of a type of "blind" forecast. For the latter the frequency for each quality grade, as determined from the distribution of quality grades in the four most recent months of the current season, is partitioned among the grades observed in the current month in proportion to the frequencies observed in the current month.

The radio propagation quality figures are prepared from radio traffic data reported to CRPL by American Telephone and Telegraph Company, Mackay Radio and Telegraph Company, RCA Communications, Inc., Marconi Company, British Admiralty Signal and Radar Establishment, and the following agencies of the U. S. Government:--Coast Guard, Navy, Army Signal Corps, and State Department. The method of calculation, summarized below, is similar to that described in a 1946 report, IRPL-R31, now out of print. Beginning with recalculated figures for January 1952, only reports of radio transmission on North Atlantic paths closely approximating New York-London are included in the estimation of quality. Observations of selected ionospheric characteristics, even though strongly correlated with radio transmission quality, and traffic reports for paths such as New York-Stockholm or New York-Tangier, previously included in the quality-figure determination with low weight, have been left out of the present calculations inasmuch as a sufficient number of homogeneous reports are now available.

The original reports are submitted on various scales and for various time intervals. The observations for each 6-hour interval are averaged on the quality scale of the original reports. These 6-hour indices are then adjusted to the 1 to 9 quality-figure scale by a conversion table prepared by comparing the distribution of these indices for at least four months, usually a year,

with a master distribution determined from analysis of the reports originally made on the 1 to 9 quality-figure scale. A report whose distribution is the same as the master is thereby converted linearly to the Q-figure scale. The 6-hourly quality figures are (subjectively) weighted means of the reports received for that period. These 6-hourly quality figures replace, beginning January 1953, the half-daily quality figures which formerly appeared in this table.

These quality figures are, in effect, a consensus of reported radio propagation conditions in the North Atlantic area. The reasons for low quality are not necessarily known and may not be limited to ionospheric storminess. For instance, low quality may result from improper frequency usage for the path and time of day. Although, wherever it is reported, frequency usage is included in the rating of reports, it must often be an assumption that the reports refer to optimum working frequencies. It is more difficult to eliminate from the indices conditions of low quality because of multipath, interference, etc. These considerations should be taken into account in interpreting research correlations between the Q-figures and solar, auroral, geomagnetic or similar indices.

Note. The North Pacific quality figures, which were published through October 1951, have been temporarily discontinued. Since the establishment of the North Pacific Radio Warning Service at Anchorage, Alaska, a larger number of reports are being received than were previously available in Washington. The preparation of the quality figures will be resumed when sufficient data have been accumulated for determination of conversion tables for these new reports.

OBSERVATIONS OF THE SOLAR CORONA

Tables 65 through 67 give the observations of the solar corona during December 1953, obtained at Climax, Colorado, by the High Altitude Observatory of Harvard University and the University of Colorado. Tables 68 through 70 list the coronal observations obtained at Sacramento Peak, New Mexico, during December 1953, derived by Harvard College Observatory as a part of its performance of a research contract with the Upper Air Research Observatory, Geophysical Research Directorate, Air Force Cambridge Research Center. The data are listed separately for east and west limbs at 5-degree intervals of position angle north and south of the Solar Equator at the limb. The time of observation is given to the nearest tenth of a day, GCT.

Table 65 gives the intensities of the green (5303A) line of the emission spectrum of the solar corona; table 66 gives similarly the intensities of the first red (6374A) coronal line; and table 67, the intensities of the second red (6702A) coronal line; all observed at Climax in December 1953.

Table 67 gives the intensities of the green (5303A) coronal line; table 68, the intensities of the first red (6374A) coronal line; and table 69, the intensities of the second red (6702A) coronal line; all observed at Sacramento Peak in December 1953.

The following symbols are used in tables 64 through 69: a, observation of low weight; -, corona not visible; and X, position angle not included in plate estimates.

RELATIVE SUNSPOT NUMBERS

Table 73 lists the daily provisional Zürich relative sunspot number, R_Z, for December 1953, as communicated by the Swiss Federal Observatory. Table 74 contains the daily American relative sunspot number, $R_{A'}$, for July through November, 1953, as compiled by the Solar Division, American Association of Variable Star Observers.

OBSERVATIONS OF SOLAR FLARES

Table 75 gives the preliminary record of solar flares reported to the CRPL. These reports are communicated on a rapid schedule at the sacrifice of detailed accuracy. Definitive and complete records are published later in the Quarterly Bulletin of Solar Activity, I.A.U., in various observatory publications, and elsewhere. The present listing serves to identify and roughly describe the phenomena observed. Details should be sought from the reporting observatory.

Reporting directly to the CRPL are the following observatories: Mt. Wilson, McMath-Hulbert, U. S. Naval, Wendelstein, Kanzel and High Altitude at Sacramento Peak, New Mexico. The remainder report to Meudon (Paris) and the data are taken from the Paris-URSIgram broadcast, monitored fairly regularly by the CRPL. The data on solar flares reported from Sacramento Peak, New Mexico, communicated by the High Altitude Observatory at Boulder, Colorado, are provided by Harvard University as the result of work undertaken on an Air Materiel Command Research and Development Contract administered by the Air Force Cambridge Research Laboratories.

The table lists for each flare the reporting observatory, date, times of beginning and ending of observation, duration (when known), total area (corrected for foreshortening), and heliographic coordinates. For the maximum phase of the flare is given the time, intensity, area relative to the total area, and the importance. The column "SID observed" is to indicate when a sudden ionosphere disturbance, noted elsewhere in these reports, occurred at the time of a flare. Times are in Universal Time (GCT).

INDICES OF GEOMAGNETIC ACTIVITY

Table 76 lists various indices of geomagnetic activity based on data from magnetic observatories widely distributed throughout the world. The indices are: (1) preliminary international character-figures, C; (2) geomagnetic planetary three-hour-range indices, Kp; (3) magnetically selected quiet and disturbed days.

The C-figure is the arithmetic mean of the subjective classification by all observatories of each day's magnetic activity on a scale of 0 (quiet) to 2 (storm). The magnetically quiet and disturbed days are selected by the international scheme outlined on pages 219-227 in the December 1943 issue of Terrestrial Magnetism and Atmospheric Electricity. The details of the currently used method follow. For each day of a month, its geomagnetic activity is assigned by weighting equally the following three criteria: (1) the sum of the eight Kp's; (2) the greatest Kp; and (3) the sum of the squares of the eight Kp's.

Kp is the mean standardized K-index from 11 observatories between geomagnetic latitudes 47 and 63 degrees. The scale is 0 (very quiet) to 9 (extremely disturbed), expressed in thirds of a unit, e.g., 5- is 4 2/3, 5o is 5 0/3, and 5+ is 5 1/3. This planetary index is designed to measure solar particle-radiation by its magnetic effects, specifically to meet the needs of research workers in the ionospheric field. A complete description of Kp has appeared in Bulletin 12b, "Geomagnetic Indices C and K, 1948," published in Washington, D. C., 1949, by the Association of Terrestrial Magnetism and Electricity, International Union of Geodesy and Geophysics. Kp is available from 1937 to date as noted in F108.

The Committee on Characterization of Magnetic Disturbance, ATME, IUGG, has kindly supplied this table. The Meteorological Office, De Bilt, Holland, collects the data and compiles C and selected days. The Chairman of the Committee computes the planetary index. Current tables are also published quarterly in the Journal of Geophysical Research along with data on sudden commencements (sc) and solar flare effects (sfe).

TABLES OF IONOSPHERIC DATA

Table 1

Washington, D. C. (38.7°N, 77.1°W) December 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(280)	2.4						(3.1)
01	(270)	(2.7)						(3.1)
02	250	3.0						3.2
03	250	3.0						3.2
04	230	3.5						3.3
05	220	3.2						3.4
06	(230)	2.7						3.4
07	230	2.8						3.4
08	220	4.5	---	---	(130)	(1.8)	2.1	3.6
09	230	5.2	210	---	120	2.2	3.0	3.6
10	230	5.3	220	3.6	(110)	(2.5)	3.3	3.6
11	250	6.2	210	3.8	110	2.7	3.4	3.5
12	250	6.3	200	3.9	110	2.7	3.0	3.5
13	250	6.0	210	3.6	110	2.7	3.2	3.5
14	240	5.8	210	---	110	2.5	2.9	3.5
15	230	5.6	210	---	110	2.3	2.4	3.5
16	220	5.5	210	---	120	1.9	2.2	3.6
17	210	4.6					2.3	3.5
18	220	3.4					2.2	3.4
19	230	2.9					2.2	3.4
20	(250)	2.5						3.3
21	(260)	2.3					2.3	3.2
22	(280)	2.1					2.4	3.1
23	(280)	2.1					2.3	3.1

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 2

Tromso, Norway (69.7°N, 19.0°E) November 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	---					4.2	---
01	---	(2.8)					5.0	(2.9)
02	(310)	(2.8)					4.3	(3.0)
03	(290)	2.2					3.4	3.0
04	(280)	2.2					2.9	3.0
05	270	1.8					3.1	3.1
06	(280)	1.6					2.9	3.1
07	(260)	1.6					3.0	3.2
08	240	2.6			---	---	2.8	3.2
09	240	3.6			---	---	1.7	3.4
10	225	4.0	---	---	---	---	2.2	3.6
11	230	4.0	225	---	---	---	1.6	3.5
12	225	4.0	---	---	---	---	2.8	3.5
13	220	3.7			---	---	2.7	3.6
14	225	3.4			---	---	2.6	3.4
15	225	2.8			---	---	2.4	3.4
16	225	2.4					2.8	3.2
17	(225)	2.0					3.1	3.2
18	(240)	(2.6)					3.8	(3.3)
19	---	---					4.4	---
20	---	---					4.2	---
21	---	---					4.3	---
22	---	---					3.9	---
23	---	---					4.4	---

Time: 15.0°E.
Sweep: 0.6 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 3

Anchorage, Alaska (61.2°N, 149.9°W) November 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	(2.2)					2.6	(3.0)
01	(290)	(2.8)					2.9	(3.2)
02	(340)	(2.8)					2.7	(2.8)
03	330	(2.2)					3.2	2.9
04	320	2.5					2.5	2.9
05	310	2.5					2.6	2.9
06	(320)	(2.3)					2.6	(2.9)
07	< 290	2.2					2.4	3.0
08	250	2.8			---	---	1.6	3.3
09	230	4.0	225	---	110	1.7		3.4
10	240	4.8	230	3.0	110	2.0		3.4
11	235	5.2	220	3.0	110	2.1		3.5
12	230	5.6	220	2.9	115	2.2		3.5
13	230	5.3	220	2.6	120	2.1		3.5
14	220	5.4	220	2.3	130	---		3.5
15	220	4.6			---	---		3.5
16	220	4.0						3.4
17	230	3.3						3.4
18	240	2.3						3.4
19	250	1.9						3.2
20	(280)	(2.0)					2.9	(3.1)
21	(310)	(2.4)					2.4	---
22	(300)	(2.2)					3.0	(3.2)
23	(300)	(2.4)					3.0	(3.0)

Time: 150.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 4

Narsarssuak, Greenland (61.2°N, 45.4°W) November 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(340)	(3.0)					5.0	(2.8)
01	(300)	(3.0)					4.0	(3.0)
02	---	(3.2)					5.0	(2.9)
03	---	(3.5)					5.0	---
04	---	(2.7)					4.7	(2.8)
05	(280)	(2.6)					4.2	(3.0)
06	(280)	(1.9)					3.8	---
07	(250)	(2.3)					2.9	(3.3)
08	250	3.5					2.2	2.4
09	230	4.3	---	---	---	---		3.5
10	230	4.6	220	---	---	2.0		3.5
11	240	4.9	220	---	120	2.2		3.5
12	250	5.0	210	---	120	2.2		3.4
13	240	5.0	220	---	120	2.2		3.4
14	240	4.6	---	---	120	(2.0)	2.0	3.3
15	250	(4.4)	---	---	---	---	2.3	(3.3)
16	240	(4.3)	---	---	---	---	2.4	(3.2)
17	240	(4.0)					4.4	(3.2)
18	260	(3.3)					4.1	(3.1)
19	280	(3.0)					5.0	(3.0)
20	(300)	(3.4)					6.0	(3.0)
21	280	(3.1)					7.2	(3.0)
22	(280)	(3.0)					8.2	(3.0)
23	(330)	(3.3)					5.7	(3.0)

Time: 45.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 5

Oslo, Norway (60.0°N, 11.1°E) November 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	---					(2.9)	---
01	300	1.4						(2.9)
02	300	1.4					1.4	2.9
03	295	1.4					1.3	2.9
04	(300)	1.3					1.4	2.9
06	(300)	1.4					1.3	3.0
06	---	(1.4)						(3.1)
07	(250)	1.8						3.1
08	240	2.5					1.4	3.3
09	220	3.8	---	---	115	---	3.1	3.6
10	220	4.4	225	---	---	2.0	3.0	3.5
11	225	5.1	225	---	115	2.0	3.0	3.5
12	230	5.0	225	---	110	2.1	3.0	3.5
13	225	5.2	225	---	110	2.0	3.1	3.6
14	225	4.8	230	---	---	1.8	3.0	3.5
15	225	4.4			---	1.8	3.1	3.5
16	220	3.8			---	---	1.4	3.4
17	240	3.0					1.8	3.2
18	240	2.5						3.3
19	245	2.8						3.4
20	---	2.2						(3.1)
21	---	(1.9)						(3.1)
22	---	---						---
23	---	---						---

Time: 15.0°E.
Sweep: 0.6 Mc to 14.0 Mc in 8 minutes, automatic operation.

Table 6

Upsala, Sweden (59.8°N, 17.6°E) November 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(330)	(2.0)					2.3	2.7
01	320	2.0					2.3	(2.7)
02	320	2.0					3.1	2.8
03	330	(1.9)					3.1	(2.7)
04	(335)	(1.6)					3.0	(2.7)
05	(340)	(1.6)					2.6	(2.6)
06	(340)	(1.7)					3.1	(2.7)
07	260	2.0			---	E	3.2	3.0
08	225	3.2	225	---	---	E	2.5	3.3
09	215	4.0	235	2.7	120	1.7	2.4	3.4
10	225	4.8	220	2.8	115	1.9	2.4	3.5
11	225	5.0	220	2.8	---	2.0	2.4	3.4
12	230	5.2	220	3.0	115	2.1	2.3	3.5
13	225	5.1	< 220	2.8	120	2.0	2.3	3.5
14	220	5.0	< 220	2.5	125	1.8	2.4	3.4
15	225	4.2	---	---	---	E	2.6	3.4
16	225	3.6			---	E	2.6	3.2
17	235	2.9					2.4	3.1
18	235	2.3					2.3	3.2
19	235	2.4					2.4	3.2
20	(250)	2.0					2.2	3.0
21	(310)	1.8					2.3	(2.9)
22	(340)	(1.8)					2.2	(2.8)
23	(335)	(1.9)					2.3	(2.6)

Time: 15.0°E.
Sweep: 1.4 Mc to 17.0 Mc in 6 minutes, automatic operation.

Table 7

Adak, Alaska (51.9°N, 178.6°W) November 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	2.9					2.2	2.9
01	280	2.8					2.2	3.0
02	280	2.9					1.9	2.9
03	290	3.1					2.1	2.9
04	280	3.2					2.1	2.9
05	270	3.1						2.9
06	250	2.9						3.1
07	240	3.3	—	—	—	—		3.3
08	240	4.8	240	—	120	1.7	1.5	3.4
09	250	5.4	240	2.9	120	2.0	2.0	3.4
10	260	6.2	240	3.4	120	2.3	1.9	3.3
11	260	6.5	240	3.4	120	2.4		3.4
12	250	6.6	240	3.6	120	2.4		3.4
13	240	6.0	240	3.4	120	2.3		3.4
14	240	5.8	240	—	120	2.0		3.4
15	230	5.3	—	—	—	—	1.6	3.4
16	230	4.4						3.4
17	230	3.2					2.0	3.4
18	250	2.6					2.8	3.3
19	260	2.4						3.2
20	270	2.4					2.0	3.2
21	280	2.6					2.1	3.0
22	300	2.8						3.0
23	280	2.9					2.4	3.0

Time: 180.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 8

Graz, Austria (47.1°N, 15.5°E) November 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.0						
01	290	3.1						
02	280	3.0						
03	280	3.1						
04	280	2.9						
05	240	2.5						
06	250	2.4						
07	225	3.2						
08	200	4.5						
09	200	5.0	—	—				
10	210	5.2	200	3.8				
11	230	5.1	200	3.8				
12	225	5.1	200	3.6				
13	210	5.2	200	—				
14	220	5.3	215	—				
15	210	5.2						
15	200	5.1						
17	215	3.9						
18	250	3.4						
19	240	3.0						
20	250	2.8						
21	270	2.9						
22	300	3.0						
23	300	3.0						

Time: 15.0°E.
Sweep: 2.5 Mc to 12.0 Mc in 2 minutes.

Table 9

San Francisco, California (37.4°N, 122.2°W) November 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(250)	(3.0)					2.9	(3.2)
01	(240)	(3.0)					2.6	(3.3)
02	(250)	(2.9)					2.5	(3.2)
03	(240)	(3.0)					2.3	(3.2)
04	(250)	(3.0)						(3.2)
05	(240)	(3.0)					2.2	(3.2)
06	(250)	(3.0)					3.8	(3.3)
07	220	(4.3)	---	--			3.0	(3.5)
08	230	6.0	220	—	(120)	(2.0)	3.6	3.7
09	230	5.2	210	—	110	(2.5)	3.3	3.6
10	240	6.0	200	(3.8)	110	(2.7)	4.0	3.5
11	250	6.4	200	(3.8)	110	(2.9)	4.0	3.4
12	250	5.8	210	(4.0)	110	(2.9)	4.2	3.4
13	250	6.8	220	—	110	(2.8)	3.8	3.5
14	250	6.4	220	—	110	(2.8)	3.8	3.4
15	230	6.0	220	—	110	(2.4)	3.3	3.5
15	220	5.6	230	—	—	—	2.5	3.5
17	210	4.8					3.7	3.5
18	(220)	(3.2)					2.8	(3.5)
19	(240)	(2.8)					2.8	3.5
20	(240)	2.7					2.7	3.4
21	(240)	2.7					2.4	3.3
22	(250)	(2.8)					3.0	(3.2)
23	(260)	(3.0)					3.0	(3.3)

Time: 120.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 10

White Sands, New Mexico (32.3°N, 106.5°W) November 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	3.4					2.8	3.1
01	260	3.4						3.1
02	250	3.2						3.2
03	250	3.4						3.2
04	230	3.3						3.3
05	250	3.2						3.1
06	260	3.2						3.1
07	230	4.8	230	—	—	1.7		3.4
08	230	5.0	220	—	110	2.1	2.2	3.5
09	240	6.4	220	3.8	110	2.5	2.5	3.5
10	240	5.5	200	4.0	110	2.8	3.0	3.5
11	250	8.7	200	4.2	110	2.9	2.9	3.4
12	260	7.0	220	4.1	110	3.0	3.6	3.4
13	260	6.9	210	4.0	110	3.0	3.8	3.4
14	250	5.8	220	3.9	110	2.8	3.1	3.4
15	240	6.5	220	—	110	2.5	3.8	3.5
18	230	8.0	220	—	120	2.1	3.2	3.5
17	220	5.2					2.2	3.5
18	220	3.6					2.6	3.4
19	250	3.0					2.4	3.2
20	240	3.0						3.4
21	250	3.0						3.2
22	270	3.1					2.5	3.1
23	270	3.3					2.6	3.0

Time: 105.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 11

Okinawa I. (25.3°N, 127.8°E) November 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	3.3						3.1
01	260	3.2						3.3
02	250	3.3						3.2
03	240	3.5						3.4
04	220	2.9						3.5
05	250	(2.9)						(3.1)
06	250	3.2						3.3
07	230	5.2			—	—		3.6
08	240	5.2	230	3.3	110	(2.5)	3.2	3.6
09	250	6.8	230	4.0	110	2.8	3.5	3.4
10	260	7.8	220	4.2	110	2.9	4.2	3.4
11	260	8.4	210	4.3	110	3.0	4.3	3.4
12	270	9.0	200	4.4	110	3.1	4.5	3.3
13	260	10.5	190	4.3	110	—•	4.9	3.4
14	240	11.3	220	4.1	—	—	4.8	3.4
15	230	9.0	230	—	110	2.6	4.2	3.8
16	220	6.6	—	—	120	—	3.5	3.5
17	210	5.4					3.2	3.6
18	210	4.4					2.8	3.5
19	230	3.8						3.1
20	240	4.0						3.3
21	250	3.3						3.3
22	260	3.1						(3.0)
23	280	3.1						3.1

Time: 127.5°E.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 12

Maui, Hawaii (20.8°N, 156.5°W) November 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	2.9					1.7	3.2
01	250	2.9						3.4
02	240	2.7					1.4	3.3
03	230	2.6						3.4
04	270	2.2						3.1
05	300	1.9						3.0
06	300	2.0					1.4	2.9
07	260	4.7	—	—	130	1.8		3.3
08	270	6.4	250	—	120	2.3	3.8	3.3
09	300	7.5	240	4.3	120	2.7	4.2	3.1
10	300	9.2	220	4.4	120	3.0	4.4	3.1
11	290	10.2	220	4.4	120	3.1	5.0	3.1
12	300	10.7	210	4.5	110	3.1	4.6	3.1
13	290	11.1	200	4.4	120	3.1	5.0	3.1
14	270	11.4	200	4.3	120	3.0	5.6	3.2
15	260	11.8	240	4.1	120	2.6	4.1	3.3
15	240	9.8	240	—	120	2.5	4.6	3.5
17	230	5.2			---	—	4.0	3.6
18	220	4.5					4.2	3.5
19	240	3.6					3.8	3.3
20	270	3.1					3.8	2.9
21	270	3.3					2.6	3.2
22	250	3.0					2.2	3.3
23	250	2.8					2.4	3.3

Time: 150.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 13

Puerto Rico, W.I. (18.6°N, 67.2°W) November 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	3.8						3.2
01	250	3.9						3.2
02	230	4.2						3.3
03	220	4.2						3.5
04	220	3.2						3.4
05	220	3.0						3.2
06	250	2.8						3.1
07	230	4.7	---	---	(120)	1.6		3.5
08	240	5.8	230	---	110	2.3		3.6
09	250	6.4	230	---	110	2.7		3.4
10	260	7.0	220	4.3	110	3.0		3.4
11	270	7.2	220	4.3	100	3.1		3.3
12	270	7.4	220	4.3	100	3.2		3.3
13	260	7.4	220	4.3	100	3.2		3.4
14	250	7.2	220	4.2	110	3.0		3.4
15	250	6.7	220	4.0	110	2.8		3.5
16	240	6.5	220	---	110	2.5		3.5
17	230	6.3	---	---	110	2.0	3.3	3.5
18	210	5.5					3.0	3.6
19	210	4.0					2.5	3.4
20	230	3.2					2.1	3.2
21	270	3.4						3.0
22	260	3.7					2.2	3.1
23	250	3.8						3.2

Time: 60.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 14

Guam I. (13.6°N, 144.9°E) November 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	3.8						3.2
01	260	3.5						3.2
02	260	3.6						3.3
03	250	3.5						3.4
04	230	2.6						3.5
05	270	2.0						3.4
06	280	2.3						3.2
07	230	5.5	240	---	120	2.0	2.8	3.5
08	260	6.8	230	---	110	2.5	3.7	3.5
09	280	8.0	220	---	110	2.9	4.6	3.3
10	300	8.6	210	4.2	110	3.1	5.2	2.9
11	320	8.8	200	4.3	100	3.1	5.2	2.5
12	330	8.0	190	---	100	3.2	5.0	2.6
13	320	8.2	200	---	110	3.1	5.1	2.7
14	310	8.8	210	---	110	3.0	6.2	2.8
15	280	9.4	210	---	110	2.8	4.9	3.0
16	260	10.0	230	---	110	2.6	4.9	3.3
17	240	9.0	240	---	---	---	3.4	3.4
18	220	8.6					3.2	3.4
19	220	7.5					3.3	3.5
20	210	6.6					2.9	3.4
21	220	5.6					3.1	3.3
22	230	5.0					2.6	3.4
23	240	4.4						3.4

Time: 150.0°E.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 15

Panama Canal Zone (9.4°N, 79.9°W) November 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	3.1						3.4
01	240	3.0						3.4
02	230	2.7						3.4
03	230	2.3					2.3	3.3
04	250	2.4					2.5	3.1
05	260	2.4					3.9	3.1
06	250	3.2					3.1	3.2
07	230	5.6	220	---	120	2.0	3.7	3.5
08	270	6.6	220	---	110	2.6	4.0	3.3
09	280	7.8	220	4.3	110	2.9	3.9	3.3
10	280	8.5	220	4.4	110	3.1	4.4	3.3
11	280	9.4	220	4.4	110	3.3	4.3	3.3
12	270	9.3	210	4.4	110	3.3	4.8	3.4
13	270	8.7	200	4.4	110	3.3	4.9	3.3
14	270	8.0	220	4.4	110	3.2	4.7	3.3
15	270	7.8	220	4.2	110	3.0	4.6	3.2
16	260	7.6	230	---	110	2.6	4.6	3.2
17	240	8.1	---	---	120	2.1	4.2	3.4
18	220	6.8					3.9	3.6
19	220	4.6					4.2	3.5
20	220	3.3					3.5	3.5
21	< 260	2.8					2.4	3.1
22	270	3.0					2.0	3.2
23	250	3.2						3.2

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 16

Huancayo, Peru (12.0°S, 75.3°W) November 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	330	(4.6)						(3.3)
01	320	(3.4)						(3.4)
02	310	(3.2)						(3.5)
03	270	(2.3)						(3.3)
04	270	1.7						(3.4)
05	290	1.6					4.4	2.8
06	240	5.2			120	1.8	4.3	3.4
07	(280)	7.2	220	---	110	2.5	5.9	3.3
08	300	8.0	210	4.2	110	2.8	9.4	3.1
09	310	8.7	200	4.2	110	3.1	11.2	2.9
10	320	8.8	200	4.4	110	---	11.7	2.7
11	340	8.6	200	4.4	110	---	11.5	2.6
12	340	8.8	190	4.4	110	---	11.5	2.7
13	340	9.0	190	4.4	110	---	11.6	2.6
14	330	9.0	190	4.3	110	3.1	11.2	2.6
15	310	9.0	190	4.2	110	---	9.4	2.7
16	(290)	8.9	200	---	110	---	9.2	2.8
17	270	9.0	230	---	110	2.2	5.8	2.7
18	250	9.1			130	1.6		2.8
19	250	8.6						3.0
20	260	8.5						3.0
21	270	7.6						2.9
22	300	6.7						2.9
23	340	(5.2)						(3.0)

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 17

Kiruna, Sweden (67.8°N, 20.5°E) October 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	---					3.8	---
01	---	---					4.2	---
02	(330)	(3.2)					2.2	(3.2)
03	(340)	(3.6)						(2.9)
04	---	---						---
05	---	---						---
06	(280)	(3.8)						(3.2)
07	280	3.8	---	---	---	---		3.4
08	260	4.0	---	---	---	---		3.3
09	255	4.2	---	---	---	---		3.4
10	260	4.4	---	---	---	---		3.6
11	260	4.5	---	3.5	---	---		3.5
12	250	4.8	---	3.3	---	---		3.5
13	250	5.2	---	---	---	---		3.5
14	250	4.9	---	---	---	---		3.5
15	240	4.4	---	---	---	---		3.4
16	250	4.2						3.4
17	260	4.1						3.3
18	250	4.0						3.3
19	260	3.8						3.2
20	(270)	(3.4)						(3.3)
21	(300)	(3.2)					4.0	(3.1)
22	(350)	(3.2)					3.9	(3.3)
23	(375)	(3.3)					4.2	(2.9)

Time: 15.0°E.
Sweep: 0.8 Mc to 15.0 Mc in 15 seconds.

Table 18

Lulea, Sweden (65.6°N, 22.1°E) October 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	(2.3)					2.6	
01								
02	310	2.4					2.4	
03								
04	310	(2.0)					2.6	
05								
06	250	2.9			---	---	1.9	
07								
08	250	4.0	225	---	125	2.0	2.6	
09								
10	250	4.9	210	3.3	110	2.3	3.0	
11								
12	255	5.3	215	3.5	115	2.5	2.8	
13								
14	245	4.9	225	3.1	110	2.2	2.3	
15								
16	235	4.4			---	1.8	2.8	
17								
18	250	2.8					2.8	
19								
20	270	(2.0)					2.1	
21								
22	290	---					2.3	
23								

Time: 15.0°E.
Sweep: 1.5 Mc to 10.0 Mc in 6 minutes, automatic operation.

Table 19

Narsarssuak, Greenland (51.2°N, 45.4°W) October 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(290)	(3.0)					4.5	(2.9)
01	(300)	(3.0)					4.5	(3.1)
02	(300)	(2.9)					4.4	(2.9)
03	---	(2.6)					4.5	(2.9)
04	(310)	(2.5)					5.1	(3.0)
05	(290)	(1.9)					4.7	(3.0)
06	(250)	2.4			---	---	4.5	3.1
07	240	3.5	---	---	110	1.6	3.2	3.4
08	240	4.0	220	---	110	2.0	3.0	3.4
09	250	4.5	220	---	110	2.2	2.4	3.4
10	260	4.9	220	3.6	110	2.4	2.3	3.4
11	260	5.3	210	(3.6)	100	(2.4)		3.4
12	270	5.2	220	(3.6)	100	2.5		3.4
13	280	5.2	210	(3.7)	100	2.5		3.3
14	280	(4.9)	230	3.5	105	2.4	2.6	(3.3)
15	250	(4.7)	230	---	110	2.2	3.5	(3.3)
16	260	(4.4)	---	---	110	(1.8)	3.5	(3.2)
17	280	(4.2)			---	---	3.8	(3.2)
18	300	(3.8)					4.1	(2.9)
19	(280)	(3.6)					4.5	(2.9)
20	(280)	(3.5)					7.1	(3.0)
21	(300)	(3.0)					8.0	(3.0)
22	(300)	(3.2)					8.0	(2.8)
23	(280)	(3.0)					5.9	(3.0)

Time: 45.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 20

Adak, Alaska (51.9°N, 176.8°W) October 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		3.2					2.4	
01		3.0					2.5	
02		3.0					2.6	
03		3.0					2.0	
04		3.2					2.4	
05		3.2					2.3	
06		3.4				---	3.4	
07		4.4		---		1.9	2.4	
08		5.1		3.2		2.4	3.5	
09		5.6		(3.6)		2.6	4.3	
10		5.1		3.7		2.7	4.5	
11		5.5		3.8		2.8	3.3	
12		6.4		3.8		2.8	3.0	
13		5.2		(3.7)		2.6	4.0	
14		6.3		(3.5)		2.6	3.5	
15		5.9		---		2.2	3.4	
16		5.3		---		1.8	2.4	
17		4.7				---	3.0	
18		3.7					3.5	
19		3.0					2.7	
20		3.0					2.4	
21		3.1					2.3	
22		3.0					2.7	
23		3.2					2.4	

Time: 180.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 21

Lindau/Harz, Germany (51.6°N, 10.1°E) October 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	2.8					2.1	3.1
01	270	3.0					2.2	3.1
02	260	3.0					2.3	3.1
03	260	3.0					2.3	3.1
04	255	2.9					2.3	3.1
05	240	2.4					2.2	3.3
06	235	2.4					2.3	3.4
07	230	3.5	---	---			2.2	3.5
08	230	4.7	220	---	120	1.8	2.6	3.5
09	240	5.0	215	3.4	105	2.4	3.0	3.5
10	255	5.7	205	3.8	105	2.6	3.4	3.5
11	260	6.0	205	3.9	105	2.7	3.6	3.6
12	240	5.2	205	3.8	105	2.7	3.5	3.5
13	240	6.0	210	3.8	100	2.6	3.5	3.6
14	240	5.0	210	---	105	2.5	3.4	3.5
15	240	5.9	210	---	110	2.3	3.2	3.5
16	230	5.7	230	---	115	2.1	3.2	3.5
17	230	5.4	---	---	---	E	3.0	3.5
18	220	5.2					2.8	3.4
19	230	4.8					2.5	3.4
20	230	3.5					2.4	3.4
21	240	3.4					2.2	3.3
22	260	3.0					2.2	3.2
23	275	3.0					2.2	3.2

Time: 15.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 8 minutes.

Table 22

Schwarzenburg, Switzerland (46.8°N, 7.3°E) October 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	3.0						3.3
01	280	3.2						3.2
02	280	3.2						3.2
03	260	3.1						3.3
04	250	3.1						3.3
05	220	3.0						3.6
06	210	2.5						3.7
07	200	3.7						3.8
08	200	4.7		---		2.2		3.9
09	200	5.2		3.7		2.4		3.9
10	200	5.6		4.0		2.5		3.8
11	200	5.1		4.0		2.8		3.9
12	210	6.5		4.0		2.8	4.2	3.9
13	210	6.4		4.0		2.9		3.9
14	200	5.0		4.0		2.8		3.9
15	200	5.0		---		2.5		3.7
16	200	5.0				2.3		3.8
17	200	5.0				---		3.9
18	200	5.3						3.8
19	200	4.6						3.6
20	200	4.4						3.8
21	200	3.4						3.6
22	220	3.2						3.5
23	250	3.2						3.4

Time: 15.0°E.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 23

Formosa, China (25.0°N, 121.5°E) October 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.9					2.4	2.8
01	260	4.0					2.3	3.1
02	240	4.0					2.4	3.2
03	220	3.9					2.3	3.5
04	220	2.6					2.2	3.3
05	260	2.1					2.0	3.1
06	240	4.0			---	E	2.2	3.2
07	230	5.2			110	2.0	3.3	3.5
08	240	6.8	---	---	110	2.6	4.2	3.4
09	280	7.9	230	4.4	100	3.0	4.5	3.3
10	280	9.2	220	4.4	---	---	4.7	3.3
11	280	9.8	210	4.5	---	---	4.9	3.3
12	280	10.5	220	4.5	---	---	4.6	3.2
13	280	12.1	220	4.4	---	---	4.4	3.2
14	280	13.5	230	4.3	110	3.2	4.2	3.3
15	260	13.0	240	4.2	110	(3.0)	4.3	3.5
16	240	11.8	230	4.0	110	2.7	4.6	3.5
17	240	9.4					4.2	3.7
18	220	8.0					4.2	3.5
19	210	5.4					3.3	3.6
20	240	5.4					3.9	3.2
21	280	4.4					2.9	3.2
22	280	4.2					3.1	3.2
23	300	3.9					2.8	2.9

Time: 120.0°E.
Sweep: 1.1 Mc to 19.5 Mc in 15 minutes, manual operation.

Table 24

Leopoldville, Belgian Congo (4.3°S, 15.3°E) October 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M2000)F2
00	255	5.0						2.2
01	270	4.6						2.2
02	255	4.4					1.6	2.3
03	230	4.0					1.8	2.5
04	220	3.3					2.4	2.7
05	230	4.9			130	1.7	2.5	2.8
06	245	6.0	230	---	120	2.5	3.0	2.7
07	270	5.3	220	(4.1)	120	3.0	3.3	2.4
08	320	7.0	220	4.3	115	3.2	3.0	2.2
09	345	8.3	210	4.5	110	3.4	3.0	2.0
10	360	9.2	210	4.5	110	3.5	2.8	2.0
11	355	10.0	200	4.5	110	3.6		2.0
12	370	10.2	200	4.5	110	3.5		2.1
13	355	11.0	220	4.4	110	3.3	3.0	2.1
14	340	11.7	230	4.2	115	3.0	3.0	2.1
15	310	12.1	230	---	120	2.6	3.9	2.2
16	280	12.2	240	---	125	2.0	3.1	2.3
17	250	12.0					3.2	2.3
18	250	12.0					2.6	2.3
19	235	11.8					2.3	2.4
20	225	10.7						2.4
21	220	10.0						2.5
22	215	8.3						2.5
23	220	6.0						2.3

Time: 0.0°.
Sweep: 1.0 Mc to 16.0 Mc in 7 seconds.

Table 25

Watheroo, W. Australia (30.3°S, 115.9°E) October 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.5					2.4	2.9
01	260	3.5					2.1	2.9
02	250	3.4					2.1	3.0
03	250	3.5					1.5	3.1
04	250	3.2						3.0
05	260	3.1						2.9
06	250	4.2	—	—		1.6		3.1
07	260	5.0	250	3.6		2.3		3.4
08	305	5.4	235	4.0		2.7	3.0	3.2
09	315	5.5	220	4.2		3.0	3.6	3.2
10	340	5.7	210	4.4		3.2	3.9	3.1
11	370	6.0	210	4.5		3.3	4.0	3.0
12	325	6.5	220	4.4		3.3	3.6	3.0
13	320	6.7	225	4.5		3.3	3.8	3.1
14	300	6.8	220	4.3		3.2	3.7	3.1
15	310	6.3	220	4.2		3.0	3.8	3.2
16	300	5.9	220	4.0		2.8	3.5	3.1
17	290	5.8	250	3.5		2.4	2.5	3.2
18	250	5.6	250	2.5		1.7	2.0	3.2
19	240	5.0						3.1
20	250	4.3					2.0	3.1
21	250	3.6						2.9
22	270	3.7					1.4	2.9
23	280	3.4					2.6	2.8

Time: 120.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 2 minutes.

Table 26

Buenos Aires, Argentina (34.5°S, 58.5°W) October 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	4.8						2.8
01	300	4.6						2.9
02	280	5.0						2.9
03	230	4.6						3.3
04	220	3.8						3.2
05	240	4.0			180	1.5	1.4	3.1
06	220	5.4	—	—	130	2.0	2.8	3.5
07	240	5.7	230	—	110	(2.5)	3.5	3.5
08	270	6.2	220	—	110	2.9	3.7	3.4
09	290	6.5	210	—	110	(3.1)	4.3	3.1
10	310	7.6	200	4.5	100	3.2	4.3	3.0
11	310	8.7	(200)	4.5	100	3.2	4.7	3.0
12	310	10.0	200	4.5	100	(3.2)	4.4	3.0
13	300	10.5	200	4.5	110	(3.1)	4.2	3.0
14	300	10.9	200	4.2	100	(3.0)	4.0	3.1
15	270	11.5	210	—	100	(2.9)	3.7	3.2
16	260	11.0	220	—	—	—	3.2	3.4
17	260	10.4	230	—	—	—	3.5	3.4
18	230	9.5						3.4
19	220	8.0						3.4
20	220	6.2					3.2	3.2
21	280	5.2						2.9
22	300	5.4					3.0	2.9
23	300	5.3						2.9

Time: 60.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 27

Decepcion I. (63.0°S, 60.7°W) October 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	4.6						(3.1)
01	290	4.5						3.1
02	290	4.3						(3.1)
03	280	4.3						(3.1)
04	280	4.2						(3.1)
05	270	4.3						(3.2)
06	230	4.6					2.0	(3.5)
07	230	5.0					2.5	(3.5)
08	220	5.4					3.0	(3.6)
09								
10	230	5.8					3.3	(3.5)
11	230	6.0					3.5	(3.4)
12	240	6.2					3.2	(3.4)
13	230	6.2					3.0	(3.5)
14	230	6.0					3.0	(3.5)
15	240	5.8					3.0	(3.5)
16	220	5.6					2.5	(3.5)
17	230	5.6					2.5	(3.5)
18	230	5.4					2.0	(3.4)
19	250	5.3						(3.3)
20	260	5.6						(3.3)
21	260	5.8						(3.2)
22	270	5.2						3.2
23	280	4.8						3.1

Time: 60.0°W.
Sweep: 1.5 Mc to 16.0 Mc in 15 minutes, manual operation.

Table 28

Resolute Bay, Canada (74.7°N, 94.9°W) September 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	3.0			—	—	3.0	3.0
01	260	3.2			—	—	3.2	3.0
02	260	3.3			—	—	3.5	3.0
03	270	3.1			—	—	3.1	3.0
04	270	3.0			—	1.4	3.6	3.0
05	280	3.0			100	1.2	3.1	3.1
06	270	3.2	250	—	100	1.6	3.5	3.1
07	270	3.5	250	3.0	100	1.9		3.0
08	320	4.0	250	3.0	100	2.0	2.8	3.0
09	380	4.0	250	3.3	100	2.1		3.0
10	400	4.1	250	3.4	100	2.2	3.0	2.8
11	400	4.1	240	3.5	100	2.3		3.0
12	400	4.2	230	3.5	100	2.3		2.9
13	420	4.0	230	3.5	100	2.2		2.6
14	380	4.2	230	3.4	100	2.2		3.0
15	380	4.0	220	3.3	110	2.1		3.0
16	320	4.0	240	3.3	110	2.0		3.0
17	270	4.0	230	3.0	110	2.0		3.0
18	260	3.9	250	—	110	1.8		3.1
19	260	3.7	—	—	110	1.5	1.6	3.0
20	260	3.8			120	1.4		3.0
21	260	3.5			—	1.2		3.0
22	250	3.4			—	—		3.1
23	250	3.0			—	—	1.9	3.0

Time: 90.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 29

Godhavn, Greenland (69.2°N, 53.5°W) September 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	(2.8)					3.6	(3.2)
01	(260)	(2.6)					3.6	(3.0)
02	(270)	(2.5)					3.5	(3.1)
03	(280)	(2.6)					4.6	(3.1)
04	(280)	(2.5)					4.5	(3.0)
05	(280)	(2.6)					5.2	(3.1)
06	(270)	(3.0)	240	—	—	—	5.2	(3.3)
07	(340)	(3.3)	(230)	2.9	—	—	3.8	(3.2)
08	(400)	(3.7)	< 240	(3.0)	—	—	2.4	(3.2)
09	(370)	(4.2)	(230)	3.3	(110)	(2.3)	2.4	(3.2)
10	(320)	(4.4)	(230)	(2.5)	(110)	(2.4)	2.3	(3.2)
11	(340)	(4.4)	(220)	(3.6)	110	2.5		(3.0)
12	(360)	(4.5)	(220)	(3.6)	(110)	2.5		3.0
13	(340)	(4.3)	(210)	(3.7)	(110)	2.5	7.2	(3.1)
14	(370)	(4.3)	220	(3.6)	(110)	2.4	5.7	(3.3)
15	(300)	(4.2)	(210)	(3.5)	(110)	2.3	3.1	(3.3)
16	(310)	(4.2)	220	(3.4)	(110)	(2.2)	3.8	(3.3)
17	(290)	(4.0)	220	(3.1)	110	2.0	4.4	(3.2)
18	(260)	(3.8)	230	—	—	—	3.8	(3.3)
19	(250)	(3.7)	—	—			5.6	(3.2)
20	(250)	(3.3)					6.4	(3.2)
21	(240)	(3.3)					5.8	(3.3)
22	(240)	(2.8)					5.2	(3.0)
23	250	(2.8)					4.5	(3.2)

Time: 45.0°W.
Sweep: 1.0 Mc 25.0 Mc in 18 seconds.

Table 30

Churchill, Canada (58.8°N, 94.2°W) September 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	2.9			---	1.7	8.0	—
01	300	2.8			—	—	7.0	—
02	280	3.0			—	1.7	6.2	—
03	300	3.0			110	3.1	6.0	—
04	330	2.9			110	2.6	4.0	(2.9)
05	(300)	< 3.0			110	3.0	5.8	—
06	320	3.3	—	—	100	3.1	4.7	(2.8)
07	360	3.8	260	3.3	110	3.1	2.8	3.0
08	400	3.8	230	3.6	110	3.0		2.8
09	390	4.0	230	3.8	110	3.0	4.0	2.9
10	360	4.3	220	3.9	110	3.0		2.8
11	380	4.5	210	3.9	110	3.0		2.8
12	380	4.6	210	3.9	110	3.0		2.8
13	390	4.8	220	3.9	110	3.0		2.8
14	400	4.7	220	3.9	110	2.9		2.8
15	370	4.8	240	3.8	110	2.8		2.9
16	340	4.8	230	3.7	110	2.7		2.9
17	300	4.6	240	3.5	110	2.5		2.9
18	300	4.3	240	—	110	2.5		3.0
19	310	3.6			110	2.6		3.0
20	310	3.6			120	2.4	7.0	3.0
21	340	3.4			120	2.7	8.0	(2.9)
22	300	3.0			120	2.3	7.6	—
23	300	2.9			—	E	8.0	(3.0)

Time: 90.0°W.
Sweep: 1.0 Mc to 10.0 Mc in 16 seconds.

Table 31

Fort Chimo, Canada (58.1°N, 68.3°W) September 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(300)	(2.4)			---	---	5.6	---
01	(280)	(2.6)			---	---	5.0	---
02	---	---			---	---	5.0	---
03	---	---			---	---	5.0	---
04	---	---			---	---	5.4	---
05	---	---			---	---	5.0	---
06	(280)	(3.8)			---	---	5.3	(3.2)
07	(300)	4.1	230	---	100	2.6	4.1	(3.3)
08	300	4.4	220	3.7	100	2.6	3.0	3.3
09	330	4.8	210	3.7	100	2.7	2.5	3.1
10	340	4.7	210	3.8	100	2.8		3.1
11	350	4.8	200	3.8	100	3.0		3.0
12	390	4.7	220	3.8	100	2.9		3.0
13	370	4.8	210	3.8	100	2.8		3.0
14	370	4.8	220	3.8	100	2.8		3.0
15	350	4.8	230	3.7	100	2.6		3.0
16	340	4.7	230	3.5	100	2.3	4.0	3.0
17	300	4.2	260	3.0	100	2.6	4.2	(3.1)
18	280	3.8			---	---	4.5	---
19	270	(3.4)			---	---	5.9	---
20	260	3.2			---	---	7.4	---
21	290	3.0					5.1	---
22	(300)	2.6					5.8	---
23	---	2.5					6.5	---

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 32

Prince Rupert, Canada (54.3°N, 130.3°W) September 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	2.0			---	---	2.2	---
01	320	1.9			---	---	2.8	---
02	340	1.9			---	---	4.0	---
03	350	2.0			---	---	4.0	---
04	370	2.0			---	---	4.0	---
05	340	2.2			---	---	4.0	---
06	300	2.4			---	---	2.1	---
07	260	< 3.0	230	2.9	110	1.8	1.8	2.8
08	G	3.4	220	3.3	110	2.2		G
09	G	< 3.7	210	3.6	110	2.5		G
10	450	4.0	200	3.8	110	2.7		G
11	420	4.4	200	3.8	110	2.8		2.8
12	440	4.4	200	3.9	110	2.9		2.9
13	450	4.4	200	3.9	110	3.0		3.0
14	400	4.4	210	3.8	110	2.8		3.0
15	390	4.4	210	3.8	110	2.7		3.0
16	340	4.4	230	3.7	110	2.6		3.1
17	300	4.2	230	3.4	120	2.3		3.1
18	250	4.0	260	---	130	2.0		3.3
19	250	3.8	---	---	---	---		3.2
20	250	3.2						3.0
21	260	3.0						---
22	270	2.4					2.0	---
23	280	2.4					1.6	---

Time: 120.0°W.
Sweep: 1.0 Mc to 10.0 Mc in 15 seconds.

Table 33

Lindau/Harz, Germany (51.6°N, 10.1°E) September 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.2					2.4	3.1
01	270	3.0					2.3	3.1
02	265	2.8					2.3	3.1
03	280	2.6					2.4	3.1
04	270	2.4			---	E	2.4	3.1
05	270	2.2			---	E	2.8	3.2
06	250	3.0	---	---	---	E	2.7	3.3
07	270	3.8	220	3.2	115	1.9	2.7	3.5
08	310	4.2	220	3.5	105	2.2	3.2	3.4
09	320	4.6	210	3.8	105	2.6	3.4	3.3
10	290	5.1	205	3.9	105	2.8	3.4	3.5
11	300	5.2	205	4.1	100	2.8	3.8	3.4
12	305	5.2	205	4.1	100	2.9	3.9	3.4
13	300	5.3	200	4.1	100	2.8	3.5	3.4
14	290	5.1	200	4.0	100	2.8	3.2	3.4
15	280	5.1	208	3.9	100	2.6	3.2	3.4
16	280	5.0	210	3.6	105	2.4	3.1	3.4
17	260	4.8	225	3.3	115	2.1	2.9	3.4
18	250	5.4	230	---	---	---	3.4	3.3
18	240	5.8			---	---	3.1	3.3
20	240	5.6			---	---	2.9	3.4
21	240	4.9					3.0	3.3
22	250	3.8					2.7	3.2
23	270	3.4					2.9	3.1

Time: 15.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 8 minutes.

Table 34

Adak, Alaska (51.8°N, 176.8°W) September 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		2.4					2.6	
01		2.3					2.0	
02		2.3					2.0	
03		2.4					2.3	
04		2.4					2.5	
05		2.6		---		---	3.0	
06		3.5		2.9		1.6	3.1	
07		4.2		3.3		2.1	3.6	
08		4.4		3.7		2.4	4.0	
09		4.4		3.9		2.7	3.9	
10		4.6		4.0		2.8	5.6	
11		4.6		4.0		2.8	4.1	
12		4.6		4.0		2.8	4.0	
13		4.6		4.0		2.8	3.4	
14		4.6		4.0		2.7	4.0	
15		4.6		3.8		2.6	2.5	
16		4.5		3.5		2.3	3.6	
17		4.4		---		1.9	3.0	
18		4.0					3.0	
19		4.0					2.4	
20		4.0					2.4	
21		3.6					2.8	
22		3.1					2.6	
23		2.8					2.4	

Time: 180.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 35

Winnipeg, Canada (49.9°N, 97.4°W) September 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	400	2.0						---
01	(380)	(2.4)					2.8	(3.0)
02	360	(2.6)					2.8	---
03	(340)	(2.4)					2.8	---
04	350	(2.4)					3.0	---
05	(340)	(2.5)					3.0	---
06	280	2.6			---	---		3.1
07	G	< 3.5	220	3.3	120	2.0		0
08	G	3.8	220	3.6	110	2.3		(2.7)
09	430	4.1	210	3.8	110	2.7		(2.9)
10	340	4.6	200	3.8	110	2.9		3.0
11	390	4.6	200	4.0	110	3.0		3.0
12	400	4.8	200	4.0	110	3.0		3.0
13	370	5.0	200	4.1	110	3.0		3.0
14	340	5.0	210	4.0	110	3.0		3.0
15	330	5.0	220	3.8	110	2.8		3.1
15	310	5.0	230	3.8	110	2.6		3.1
17	300	4.8	230	3.4	120	2.3		3.1
18	260	4.7	240	---	140	2.0		3.2
19	240	4.4						3.2
20	260	3.8						3.1
21	270	3.0						3.1
22	280	2.6						3.1
23	320	2.2						3.0

Time: 90.0°W.
Sweep: 1.0 Mc to 10.0 Mc in 15 seconds.

Table 36

St. John'e, Newfoundland (47.6°N, 52.7°W) September 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	2.1					2.4	2.9
01	300	2.0					2.8	2.8
02	300	1.8					3.1	2.9
03	(300)	1.8					3.0	(3.0)
04	290	1.9			---	E	3.1	(2.9)
05	250	2.6	---	---	---	E		3.2
06	230	3.8	230	---	120	2.0		3.3
07	280	4.2	210	3.5	120	2.4		3.3
08	310	4.4	210	3.8	120	2.7		3.3
09	300	4.7	210	4.0	120	3.0	3.6	3.2
10	340	5.0	200	4.2	110	3.1		3.2
11	330	5.2	200	4.2	120	3.2		3.2
12	320	5.3	210	4.2	120	3.2		3.2
13	330	5.4	210	4.2	120	3.1		3.2
14	340	5.4	220	4.0	110	2.8		3.2
15	310	5.4	230	3.9	120	2.8		3.2
16	290	5.2	230	3.5	120	2.4		3.2
17	270	5.4	240	3.0	130	1.8		3.2
18	240	5.5			---	E		3.2
18	240	4.8					1.2	3.2
20	240	3.8						3.2
21	270	2.8						3.0
22	280	2.8						3.0
23	290	2.3					2.0	2.8

Time: 60.0°W.
Sweep: 0.8 Mc to 10.0 Mc in 18 seconds.

Table 37

Ottawa, Canada (45.4°N, 75.9°W) September 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	2.0						2.9
01	(300)	2.0						(3.0)
02	(330)	2.0						---
03	---	(2.0)					3.0	---
04	(350)	(1.9)					3.0	---
05	---	(1.9)					2.9	---
06	270	3.0	240	3.0	---	---		3.1
07	0	3.9	230	3.6	120	2.2		3.3
08	300	4.4	220	3.8	120	2.7		3.1
09	330	4.7	210	3.9	110	2.8		3.0
10	320	5.0	210	4.0	120	3.0		3.1
11	320	5.0	200	4.1	110	3.0		3.0
12	330	5.4	210	4.2	110	3.0		3.0
13	360	5.2	210	4.2	110	3.0		3.0
14	320	5.2	220	4.1	120	3.0		3.1
15	320	5.2	220	3.9	120	2.8		3.1
16	300	5.3	230	3.8	120	2.6		3.1
17	280	5.3	240	3.4	120	2.2		3.1
18	260	5.3	240	---	---	1.9		3.2
19	240	5.0						3.1
20	240	4.2						3.1
21	260	3.2						3.0
22	280	2.6						3.0
23	290	2.2						2.9

Time: 75.0°W.
Sweep: 1.0 Mc to 10.0 Mc in 15 seconds.

Table 38

Wakkanai, Japan (45.4°N, 141.7°E) September 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.4					2.6	2.9
01	280	3.3					2.2	2.9
02	280	3.4					2.4	2.9
03	260	3.4					2.6	3.0
04	260	3.0					2.6	3.0
05	260	3.3	---	---	---	---	2.6	3.1
06	250	4.4	250	---	130	1.8	3.2	3.2
07	270	5.1	240	3.6	110	2.3	3.4	3.2
08	270	5.6	230	4.0	110	2.6	4.2	3.3
09	280	5.6	220	4.1	110	2.8	4.2	3.3
10	300	5.4	220	4.2	110	2.9	3.8	3.2
11	320	5.8	220	4.3	110	3.0	4.2	3.1
12	320	5.7	220	4.2	110	3.0	4.1	3.1
13	310	5.5	220	4.2	110	2.9	3.6	3.2
14	300	5.6	230	4.1	110	2.8	3.0	3.2
15	290	5.2	230	3.8	110	2.6	3.1	3.2
16	280	5.2	240	3.5	120	2.4	> 3.2	3.2
17	260	5.5	---	---	130	1.8	3.4	3.2
18	250	5.2					3.2	3.1
19	260	5.4					3.5	3.0
20	260	5.1					3.0	3.0
21	260	4.6					3.0	3.0
22	260	4.2					3.0	3.0
23	280	3.7					2.5	2.9

Time: 135.0°E.
Sweep: 1.0 Mc to 15.5 Mc in 2 minutes.

Table 39

Akita, Japan (39.7°N, 140.1°E) September 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	3.6					3.2	2.9
01	300	3.5					3.0	2.8
02	280	3.4					2.3	2.9
03	260	3.5					2.4	3.0
04	260	3.2					2.6	3.0
05	270	3.2					2.4	3.1
06	250	4.5	250	3.0	130	1.7	3.4	3.3
07	260	5.4	240	3.6	120	2.3	4.2	3.4
08	270	5.8	230	3.9	110	2.6	4.5	3.4
09	270	6.0	220	4.1	100	2.8	4.5	3.4
10	300	5.8	200	4.3	100	3.0	4.5	3.3
11	310	5.6	210	4.3	100	3.0	4.5	3.2
12	320	5.8	210	4.4	100	3.1	4.3	3.1
13	300	5.9	220	4.3	100	3.0	4.3	3.2
14	300	5.7	220	4.2	100	2.9	4.2	3.2
15	300	5.8	240	4.0	100	2.8	4.0	3.2
16	280	5.7	240	3.6	110	2.4	3.7	3.2
17	260	6.0	260	3.2	120	2.0	3.5	3.3
18	250	5.8					4.0	3.3
19	240	5.8					4.0	3.2
20	250	5.2					3.5	3.1
21	260	4.4					3.7	3.0
22	280	4.0					3.7	3.0
23	280	3.7					3.5	2.9

Time: 135.0°E.
Sweep: 0.85 Mc to 22.0 Mc in 2 minutes.

Table 40

Tokyo, Japan (35.7°N, 139.5°E) September 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.7					3.0	3.0
01	280	3.7					2.7	3.0
02	270	3.4					2.8	3.0
03	250	3.2					2.5	3.0
04	260	3.0					2.5	3.0
05	270	3.0					2.3	3.0
06	240	4.5	240	---	130	1.8	2.9	3.3
07	250	5.7	230	3.7	110	2.4	3.8	3.3
08	250	6.2	230	4.0	110	2.8	4.3	3.4
09	260	6.2	220	4.2	110	2.9	4.4	3.4
10	300	6.0	200	4.3	110	3.0	4.3	3.2
11	300	6.0	200	4.4	110	3.0	4.4	3.2
12	300	6.1	200	4.4	110	3.2	4.1	3.2
13	290	6.2	220	4.4	110	3.0	4.1	3.2
14	300	6.0	220	4.2	110	3.0	4.2	3.2
15	290	6.0	230	4.0	110	2.8	3.7	3.2
16	270	6.4	230	3.7	110	2.5	3.8	3.2
17	260	6.5	240	3.5	120	1.9	3.9	3.3
18	240	6.9	---	---			3.4	3.3
19	230	6.0					3.0	3.2
20	250	5.0					3.7	3.2
21	270	4.0					3.1	3.0
22	290	3.7					3.0	3.0
23	300	3.7					3.5	3.0

Time: 135.0°E.
Sweep: 1.0 Mc to 17.2 Mc in 2 minutes.

Teble 41

Yamagawa, Japan (31.2°N, 130.6°E) September 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.6					2.8	2.9
01	300	3.6					2.8	2.8
02	280	3.3					2.4	2.9
03	280	3.3					2.2	3.0
04	280	3.0					2.2	3.0
05	280	2.6					2.2	2.9
06	270	3.6			---	---	2.2	3.1
07	250	5.7	250	---	120	2.0	3.0	3.5
08	250	6.1	240	3.9	110	2.5	3.6	3.5
09	260	6.4	230	4.2	110	2.8	4.0	3.4
10	300	6.1	220	4.4	110	3.0	4.1	3.3
11	300	6.4	210	4.4	110	3.2	4.2	3.2
12	310	6.6	210	4.6	110	3.2	3.6	3.2
13	300	7.1	220	4.5	110	3.2	4.2	3.1
14	310	7.0	240	4.4	110	3.1	3.6	3.1
15	310	7.2	240	4.3	110	3.0		3.1
16	300	7.3	250	4.0	110	2.8	2.9	3.2
17	280	7.3	250	3.8	110	2.4	3.8	3.3
18	250	7.4	260	---	110	1.8	3.9	3.3
19	240	6.2	---	---			3.5	3.4
20	240	5.5					3.2	3.3
21	270	4.1					3.4	3.0
22	300	3.8					3.2	2.8
23	330	3.7					3.0	2.8

Time: 135.0°E.
Sweep: 0.8 Mc to 20.0 Mc in 15 minutes, manual operation.

Table 42

Johannesburg, Union of S. Africa (26.2°S, 28.1°E) September 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	3.4						3.1
01	250	3.1						3.2
02	240	3.1						3.2
03	240	2.8						3.2
04	260	2.6						3.0
05	270	2.6						3.0
06	250	3.4						3.2
07	230	5.2	230	---	120	2.1		3.5
08	260	5.6	220	3.9	110	2.6		3.4
09	280	6.2	210	4.2	110	2.9		3.3
10	300	6.6	210	4.4	110	3.1		3.2
11	300	6.7	200	4.4	110	3.3		3.2
12	300	6.8	200	4.5	110	3.3		3.2
13	290	6.9	200	4.4	110	3.2	3.6	3.1
14	280	7.4	200	4.3	110	3.1	3.6	3.1
15	280	7.4	210	4.1	110	3.0	3.6	3.2
16	270	6.8	210	3.9	110	2.7	3.3	3.3
17	240	6.6	230	3.1	120	2.2	2.8	3.3
18	230	5.8					2.3	3.3
19	230	5.0						3.3
20	240	3.8						3.2
21	250	3.4						3.1
22	260	3.6						3.1
23	250	3.6						3.1

Time: 30.0°E.
Sweep: 1.0 Mc to 15.0 Mc in 7 seconds.

Table 43

Watheroo, W. Australia (30.3°S, 115.9°E) September 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	3.2					2.3	3.0
01	250	3.2					2.0	3.1
02	250	3.2					2.4	3.2
03	250	3.0						3.1
04	255	2.8					1.4	3.0
05	255	2.8					1.4	3.0
06	250	3.2				---		3.1
07	250	4.3	230	3.5		1.9		3.4
08	290	5.0	240	3.8		2.5	3.0	3.4
09	300	5.4	220	4.2		2.8	3.2	3.3
10	330	5.7	220	4.4		3.0	3.3	3.2
11	300	6.2	210	4.4		3.2	3.5	3.2
12	320	6.2	220	4.5		3.2	3.6	3.1
13	310	6.5	220	4.5		3.2	3.6	3.2
14	300	6.4	210	4.4		3.2	3.6	3.3
15	295	6.1	230	4.2		3.0	3.5	3.3
16	280	6.0	230	3.9		2.7	3.2	3.3
17	250	5.4	240	3.3		2.3	3.2	3.4
18	240	4.8				---	1.7	3.3
19	240	4.1					2.3	3.3
20	250	4.0						3.1
21	260	3.8						3.0
22	255	3.6						3.0
23	260	3.3						3.0

Time: 120.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 2 minutes.

Table 44

Capetown, Union of S. Africa (34.2°S, 18.3°E) September 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	2.9						3.0
01	260	3.0						3.1
02	260	3.0						3.1
03	250	3.0						3.2
04	240	2.9						3.3
05	250	2.8						3.1
06	250	2.7						3.1
07	240	4.1			---	1.7		3.5
08	240	5.1	240	---	120	2.2		3.4
09	260	5.6	230	4.0	120	2.6		3.3
10	280	6.1	220	4.2	110	2.9		3.4
11	290	6.7	210	4.3	110	3.1		3.2
12	300	6.8	200	4.4	110	3.2		3.1
13	300	7.1	210	4.4	110	3.2		3.0
14	290	7.7	210	4.4	110	3.2	3.4	3.1
15	280	7.7	220	4.2	120	3.1	3.3	3.2
16	270	7.0	220	4.0	120	2.8	3.2	3.2
17	260	6.9	220	3.6	120	2.5	2.8	3.3
18	240	6.4	230	2.6	120	1.9		3.4
19	220	5.1						3.4
20	230	3.9						3.3
21	240	3.0						3.2
22	250	3.1						3.2
23	250	3.0						3.2

Time: 30.0°E.
Sweep: 1.0 Mc to 15.0 Mc in 7 seconds.

Table 45

Godhavn, Greenland (69.2°N, 53.5°W) August 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	(3.2)					3.2	(3.2)
01	250	(2.8)					1.6	(3.2)
02	250	(2.7)					2.2	(3.1)
03	250	(2.8)					4.0	(3.2)
04	240	(3.0)	(220)	---	---	---	2.0	(3.3)
05	---	(3.0)	(220)	---	100	(1.6)	4.9	(3.4)
06	440	(3.4)	(210)	2.7	(110)	(1.9)	5.6	(3.4)
07	---	(3.8)	(220)	(3.1)	100	(2.2)	4.5	(3.4)
08	(440)	(4.2)	(210)	3.4	(100)	(2.3)	4.0	(3.3)
09	(350)	(4.3)	(200)	(3.7)	(100)	2.4	3.9	(3.1)
10	(380)	(4.6)	210	(3.7)	(100)	(2.5)	3.1	(3.1)
11	(350)	(4.6)	200	(3.7)	100	2.6	3.3	(3.1)
12	(340)	(4.8)	(200)	(3.8)	100	2.7		(3.2)
13	(420)	(4.4)	(200)	(3.7)	100	2.7	4.0	(2.8)
14	(380)	(4.4)	200	3.7	100	2.6	5.9	(3.1)
15	(380)	(4.1)	(200)	(3.7)	100	2.6	7.2	(3.1)
16	(370)	(4.2)	200	3.7	100	2.5	5.8	3.0
17	(340)	(4.1)	220	3.6	(100)	2.4	7.2	(3.2)
18	330	(4.0)	210	3.4	100	2.2	5.0	(3.2)
19	280	(3.9)	220	3.2	(100)	---	4.1	(3.3)
20	250	(3.8)	230	---	---	---	4.0	(3.3)
21	250	(3.5)	230	---	---	---	3.8	3.3
22	230	(3.3)	---	---			3.1	(3.3)
23	240	(3.1)					3.1	(3.2)

Time: 45.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 18 seconds.

Table 46

Point Barrow, Alaska (71.3°N, 156.8°W) July 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	3.4	---	---			5.7	3.2
01	260	3.5	210	---			6.7	3.2
02	260	3.6	230	---	---	---	7.1	3.2
03	310	3.5	220	---	---	---	5.4	3.2
04	340	3.5	210	3.1	---	---	4.9	3.2
05	340	3.6	220	3.3	100	---	4.8	3.2
06	460	3.6	220	3.4	---	---	4.9	2.7
07	400	4.0	220	3.5	---	---	4.9	2.9
08	450	4.0	210	3.7	100	2.5	4.8	2.7
09	510	4.0	220	3.7	100	2.6	4.5	2.6
10	480	4.0	220	3.8	100	2.7	4.8	2.6
11	G	< 3.9	210	3.8	100	2.8	4.4	G
12	520	4.0	200	3.8	100	2.7	4.2	2.6
13	550	4.0	210	3.8	100	2.7	3.8	2.6
14	500	4.0	210	3.8	100	2.7	3.0	2.6
15	480	4.1	220	3.8	100	2.7		2.6
16	420	4.1	230	3.7	100	2.6		2.8
17	415	4.1	220	3.7	100	2.4	2.9	2.8
18	380	4.0	220	3.5	100	2.2	3.0	2.9
19	360	3.8	230	3.4	100	2.0	4.0	3.1
20	350	3.8	240	3.4	100	---	4.5	3.1
21	310	3.6	250	---	---	---	5.6	3.2
22	290	3.6	---	---			5.6	3.2
23	300	3.5	250	---			6.5	3.2

Time: 150.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 47

Reykjavik, Iceland (64.1°N, 21.8°W) July 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(360)	(3.4)					5.4	(2.8)
01	---	---					5.0	---
02	(320)	(3.2)					5.8	(2.9)
03	(310)	(2.8)					4.3	3.0
04	(310)	3.2	250	---	---	---	3.8	2.9
05	(360)	3.5	220	---	---	---		(3.0)
06	(400)	(3.8)	250	3.4	100	2.0		(2.8)
07	(430)	3.9	240	3.5	100	2.3		2.9
08	460	4.1	230	3.7	100	2.5		2.7
09	440	4.2	230	3.9	110	2.6		2.8
10	450	4.3	220	3.9	100	2.9		2.8
11	420	4.4	220	4.0	110	(2.8)		2.8
12	460	4.4	200	4.0	100	2.9		2.7
13	470	4.4	210	4.0	100	2.9		2.7
14	520	4.4	220	4.0	110	2.9		2.5
15	480	4.4	220	4.0	110	2.7		2.8
16	420	4.3	230	3.9	110	2.7		2.8
17	420	4.3	220	3.8	120	---		2.7
18	380	4.4	240	3.6	---	---	4.0	2.9
19	350	4.1	250	3.4	---	---	3.4	3.0
20	320	4.0	270	---	---	---	3.4	2.9
21	320	(4.2)					4.4	(2.9)
22	300	(3.6)					4.0	(3.0)
23	340	(3.4)					4.4	(2.8)

Time: 15.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 18 seconds.

Table 48

Reykjavik, Iceland (64.1°N, 21.8°W) June 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(310)	(3.4)					4.2	(3.2)
01	(310)	(3.6)					5.1	(3.1)
02	(300)	(3.7)					4.7	(3.1)
03	(310)	(3.8)	---	---			4.8	(3.0)
04	(310)	(3.8)	240	---	---	---	3.7	(3.1)
05	(340)	3.8	220	3.2	100	---	2.4	3.1
06	350	(4.0)	210	3.4	100	2.2	3.1	3.0
07	380	4.2	200	3.6	100	---		3.0
08	400	4.3	200	3.8	100	---		3.0
09	380	4.4	200	3.9	100	---		3.0
10	370	4.5	200	3.9	---	---		3.0
11	390	4.6	200	4.0	100	---		2.9
12	400	4.5	200	4.0	100	3.1		3.0
13	410	4.6	200	4.0	100	3.0		2.9
14	390	4.6	200	4.0	100	3.0		2.9
15	380	4.5	200	4.0	100	(2.8)		2.9
16	380	4.5	200	3.8	100	(2.7)		2.9
17	350	4.6	200	3.8	100	---		3.0
18	340	4.5	210	3.7	---	---		3.1
19	320	4.3	220	3.5	---	---	3.7	3.1
20	300	4.2	240	---	---	---	3.6	3.1
21	320	(4.1)	---	---			4.8	(3.1)
22	320	(3.8)					4.6	(3.2)
23	(300)	(3.4)					4.6	(3.1)

Time: 15.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 18 seconds.

Form accepted June 1948

TABLE 49

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

IONOSPHERIC DATA

h'F2 (Characteristic), Km (Unit) December (Month), 1953

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Scaled by: F.J.Mc E.J.W., J.W.P

Lat 38.7°N, Long 77.1°W 75°W Mean Time

Calculated by: F.J.Mc E.J.W., J.W.P

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	(310)S	(270)S	250	250	240	230	230	210	240	280	230	250	230	250	240	230	230	200	230	(240)S	(240)S	(240)S	(280)S	(280)S
2	(240)S	260	240	260	230	240	(220)S	230	240	280N	280	250	230	250N	240	230	230	200	230	230	250	(250)S	(280)A	(280)S
3	(260)S	260	250	240	210	210	(220)S	220	230	(230)C	230	250	240	250	250	230	220	200	220	240	240	(210)S	(240)S	(250)S
4	230S	240S	230S	220S	220	220	210	210N	210	230N	240	290N	240	250	240	230	(210)A	210	220	(240)A	(260)S	(250)A	250	(270)S
5	220	260	230	250	240	240	(250)S	220	210	220	230	220	230	240	230	240	200	230	(240)S	220	(250)S	(310)S	<330S	<340S
6	S	(290)S	(260)S	240	220	220	230	220	220	230	230	260	260	250N	260	230	210	220	(240)S	(220)A	(250)A	(270)S	(280)S	(290)S
7	250	(260)S	250	250	220	220	(240)C	220	220	220N	220N	230	240	230	260	230	(210)A	240	(240)A	A	A	(290)A	(270)A
8	(250)S	(230)S	(250)A	250	(250)S	(240)S	(230)A	230	210	220	220	(260)C	280	250N	240	230	220	200	(250)A	240	230	(250)S	(280)S	(270)S
9	(250)S	240	240	230	220	220	(250)S	230	230	A	A	(260)A	(230)A	250	250	240	(230)A	210	(210)S	(230)S	(230)S	(250)S	6270S	(300)S
10	(280)S	250	(240)S	(250)A	230	230	230	230	(230)A	230	230	240	(230)N	240	240	230	210	200	230	230	(230)S	A	A S	S
11	(270)A	(280)F	220	(240)S	240	230	(250)S	(250)S	230	220	(280)S	200	250	250	260	240	250	220	220	240	(250)S	(250)A	A	A
12	(300)A	(280)A	250	(250)S	(240)S	(260)S	(300)S	260	(240)A	280	260	250	230	250	240	(240)L	240	230	220	(240)S	(280)S	250	<300S	S
13	A	A	220	(250)S	220	250	(250)S	230	250	240	(260)A	(220)A	280	220	(280)L	250	230	(220)A	(240)A	(250)A	A	A	A	A
14	(220)S	(320)S	(280)A	(220)A	(260)A	(240)S	240	230	220	240	230	(240)L	230	230	240	230	220	210	(230)S	250	(240)S	(260)S	F	A
15	(270)S	(280)S	F	A	240	(230)S	230	210	220	240	230	260	(250)L	240	240	220	220	210	220	(220)S	S	S	S	(300)S
16	(300)S	(280)S	(270)S	(270)S	240	(230)S	(250)S	(240)S	220	230	230	260	280	250	250	230	230	200	230	(270)S	(290)S	A	A	A
17	A	A	<330S	(280)A	220	(220)S	(220)S	200	210	230	220	260	250	240N	260	230	210	220	220	(230)S	[250]S	(270)S	(270)S	(300)S
18	(280)A	(270)S	(270)S	250	230	(220)S	(230)S	(250)S	220	250	250	250	(250)L	250	240N	230	210	210	(230)A	220	(280)S	S	A	<340S
19	<310S	[300]S	(270)S	250	240	220	(230)S	220	220	210	(230)A	240	230	240	240	240	(230)A	210	230	220	(250)A	(260)A	(290)S	(250)S
20	(250)S	240	(250)S	240	230	210	230	(220)S	220	220	230	260	250	270	240	220	220H	210	240	(230)L	<340S	S	(310)S	(300)S
21	(280)S	(270)S	250	240	230	(220)S	230	240	220	220	240	240	C	C	240	(240)L	220	210	220	230	220	(220)S	(240)S	250
22	(250)S	260	250	250	230	230	220	250	220	230	[240]L	(240)L	260	250	250	230	230	210	220	220	(220)S	<330S	(290)S	(270)S
23	(300)S	(250)S	250	240	230	200	220	230	(220)A	220	250	270	250	240	250	240	210	210	210	220	(230)S	(300)S	[290]A	(280)S
24	(250)S	(270)S	270	250	230	230	(210)S	220	(220)A	240	250	250	240	250	250	(270)L	230	210	210	(230)S	S	S	S	(310)S
25	(280)S	(280)S	(270)S	250	240	210	220	230	210	240	250	240	230	230	250	240	220	210	220	230	(260)S	(260)S	(280)S	280
26	260	250	250	240	230	220	230	(230)A	210	220	220	240	250	240	250	250	230	210	(230)S	230	(230)S	(310)S	<340S	<340S
27	(310)S	<300S	F K	F K	F K	220 K	(260)S	(240)S	210 K	230 K	260 K	240 K	240 K	270 K	250 K	230 K	230 K	230 K	210 K	220 K	(250)A	(290)S	(280)S	270 K
28	(290)S	(240)S	250	230	230	220	(240)S	260	230	220	240	230	240	250	230	220	220	200	210	<290S	S	S	S	S
29	S	(290)S	(270)S	230	220	210	(250)S	(260)S	220	240	260	250	250	230	250	240	230	200	230	240	(250)S	(260)A	(290)S	F
30	F	F	S	250	240	200	230	250	220	230	260	250	240	(240)L	250	250	230	210	210	(210)S	S	S	S	S
31	(350)S	(240)S	(270)S	240	230	220	(230)S	(230)S	230	230	270	250	240	240	250	240	230	220	230	(240)A	(240)S	(250)S	(280)S	(290)S
Median	(280)	(270)	250	250	230	220	(230)	230	220	230	230	250	250	250	240	230	220	210	220	230	(250)	(260)	(280)	(280)
Count	24	27	27	29	30	31	31	31	31	30	30	31	30	30	31	31	31	31	31	30	24	20	18	19

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U.S. GOVERNMENT PRINTING OFFICE: 1953 O - 783318

Form adopted June 1946

TABLE 50

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

IONOSPHERIC DATA

foF2 (Characteristic), Mc (Unit), December (Month), 1953

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Lat. 38.7°N, Long. 77.1°W

75°W Mean Time

Scaled by: F.J.McC, E.J.W., J.W.P.

Calculated by: F.J.McC, E.J.W., J.W.P.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	1.9	2.4	3.0	3.3	3.8	3.8	3.1 $^{J}_{3}$	3.7	5.2	5.3	(6.8)$^{D}_{5}$	6.2	6.3	6.3	6.2	5.7	5.4	(4.5)$^{D}_{5}$	3.3	2.8	2.4	2.5	2.1	2.2^{F}
2	2.6	3.1^{F}	3.2^{F}	2.8^{F}	(3.1)$^{F}_{5}$	3.0^{F}	2.8^{F}	3.8	5.8	(6.2)^{H}	6.2	6.4	6.6	6.4^{H}	6.2	5.6	(5.6)$^{J}_{5}$	4.9	(3.0)^{F}	(2.8)^{F}	(2.4)$^{F}_{5}$	2.0^{F}	(2.1)$^{F}_{5}$	2.3$^{F}_{5}$
3	(3.0)$^{F}_{5}$	(3.3)$^{F}_{5}$	3.5^{F}	4.0^{F}	4.2	3.2^{F}	3.0	3.7	5.6^{V}	(5.3)$^{D}_{5}$	5.4	7.8	6.6	6.4	[6.3]^{S}	6.1^{F}	5.5$^{F}_{5}$	(5.3)$^{F}_{5}$	3.9$^{F}_{5}$	3.5$^{S}_{5}$	3.5^{F}	3.1^{F}	2.8$^{S}_{F}$	3.2$^{F}_{5}$
4	3.7$^{F}_{5}$	3.8$^{F}_{5}$	4.0$^{F}_{5}$	4.2$^{F}_{5}$	4.2	4.1$^{F}_{5}$	3.7$^{F}_{5}$	(3.7)$^{F}_{H}$	(5.6)^{S}	6.2$^{J}_{H}$	5.1^{S}	(6.4)$^{F}_{H}$	7.0	6.8	6.2	6.7	5.6^{S}	5.0	3.7	3.3^{S}	2.7^{F}	2.9^{F}	2.9	2.8^{F}
5	2.7	3.0^{F}	2.9	2.8^{F}	2.9	2.9	2.6	3.3	4.9	5.0	5.4	6.6	6.4	5.1	6.2	6.1	5.3	4.8	3.8	3.3	3.2	1.9	1.9$^{J}_{3}$	1.8$^{J}_{3}$
6	1.7$^{J}_{3}$	(1.8)$^{D}_{5}$	2.3	2.9	2.7^{F}	2.7	2.5^{S}	3.0	5.5	6.2	4.9	6.6	5.4	6.8^{H}	6.6	5.7	5.2	4.5	3.7	3.6	(2.5)^{A}	2.2	2.1	2.1
7	2.3$^{F}_{5}$	(2.5)$^{D}_{5}$	F	F	4.0	3.6	2.9	3.3	4.9	5.2^{H}	5.6^{H}	(5.5)^{S}	6.3	5.7	5.7	5.7	5.8	5.1	3.0	2.8	A	A	(2.5)^{S}	(2.9)^{F}
8	(3.3)^{F}	(3.5)^{F}	(3.4)$^{J}_{F}$	3.2^{F}	(3.1)^{F}	(3.5)^{F}	(3.3)^{F}	3.5$^{J}_{5}$	(4.9)^{S}	5.8	5.6	[6.2]^{C}	6.8	6.6^{H}	6.4	6.7	5.6	4.2	(3.4)^{A}	(3.6)^{S}	3.4$^{J}_{3}$	2.6$^{J}_{F}$	2.4	(2.5)^{F}
9	(3.3)$^{D}_{F}$	(3.8)^{F}	4.0	4.2$^{F}_{5}$	3.7^{F}	3.7^{F}	2.9^{F}	3.2	(4.3)^{A}	A	A	6.1	6.3	6.4	6.0	6.4	6.3	5.0	3.4	2.7	2.4	2.1$^{J}_{F}$	2.3^{F}	(1.9)^{F}
10	(1.8)$^{J}_{3}$	(2.8)^{F}	3.2^{F}	3.7^{F}	3.6^{F}	3.5^{F}	3.3	3.2	5.0	(5.6)$^{F}_{5}$	5.2	6.7	(6.4)$^{F}_{5}$	6.2	6.2	(5.6)$^{D}_{5}$	6.6	5.0^{S}	4.0^{S}	2.9$^{F}_{5}$	(3.0)$^{F}_{5}$	A	F^{A}	F^{A}
11	(1.9)^{F}	(2.2)$^{F}_{F}$	(3.7)$^{J}_{F}$	3.4^{S}	3.4$^{J}_{F}$	3.5^{F}	3.1	3.1	4.5	5.0	4.8^{H}	5.8	6.6	6.5	6.3	6.4	5.6	6.6	6.0	4.3	3.2	3.1	2.4	2.4
12	2.8	2.9^{F}	2.9	2.7	2.5^{F}	2.2^{F}	2.2	2.5	3.8	4.4	5.6	5.7	5.4	6.4	5.7	5.7	5.2	4.9	3.4	3.1	2.5	2.4	1.9	(1.8)^{S}
13	[2.0]^{A}	(2.5)$^{A}_{F}$	(3.0)$^{J}_{F}$	(2.8)^{F}	3.0	2.8	2.5	2.8	3.8	4.5	4.5	5.4	5.6	5.4	5.0	5.8	5.7	4.2	[3.4]^{A}	(2.5)^{A}	A	A	A	(2.1)^{A}
14	2.4	(2.7)$^{F}_{H}$	(2.5)^{F}	(2.4)^{A}	[2.4]^{A}	(2.4)^{A}	(2.2)^{F}	2.9$^{J}_{F}$	(4.8)$^{J}_{5}$	5.2^{S}	5.6^{F}	(5.0)$^{D}_{F}$	(6.0)$^{F}_{5}$	5.7	5.7	5.4	5.1	4.5	2.7^{F}	(2.5)$^{D}_{5}$	(2.5)$^{D}_{F}$	(1.9)$^{F}_{F}$	[1.8]^{F}	(1.6)$^{J}_{F}$
15	(2.4)$^{D}_{F}$	(2.4)$^{F}_{F}$	F^{A}	F^{A}	(3.6)$^{J}_{5}$	(3.5)$^{J}_{F}$	(3.0)^{F}	3.0	4.5	5.8	5.2	5.7	(6.1)$^{J}_{H}$	5.7	5.8	5.7	5.6	4.7	3.3	2.4	1.9$^{J}_{3}$	(1.9)^{S}	2.1	2.1$^{J}_{F}$
16	(2.2)$^{J}_{F}$	(2.9)^{F}	(2.6)$^{F}_{F}$	(2.5)$^{F}_{5}$	(2.6)$^{D}_{F}$	(2.5)^{F}	(2.2)$^{F}_{F}$	(2.4)$^{J}_{F}$	3.9	4.7	5.2	5.7	6.0$^{J}_{5}$	6.1	6.6	5.4	(6.4)$^{J}_{5}$	4.2^{F}	2.6^{S}	2.0^{F}	(2.0)$^{F}_{A}$	A	A	A
17	A	A	1.8	2.1	2.3^{F}	2.6^{F}	(2.4)$^{D}_{F}$	(2.6)$^{F}_{5}$	4.3	(5.1)^{D}	4.5	5.6	5.6	5.2^{H}	6.0	5.6	4.9	4.6	3.4	(2.4)^{S}	(2.0)^{S}	2.2^{F}	2.2^{F}	2.2^{F}
18	(2.5)$^{D}_{A}$	2.6	(2.7)^{S}	1.9$^{J}_{F}$	3.1	2.8	2.5	2.4	3.9$^{J}_{3}$	5.2	5.1	6.3	5.0	6.1	5.7^{H}	5.6$^{J}_{5}$	5.4	4.1	2.7$^{J}_{5}$	2.5^{S}	(1.8)^{S}	A^{S}	A	(1.8)$^{D}_{5}$
19	(1.9)$^{D}_{5}$	(1.9)$^{J}_{3}$	(2.1)$^{D}_{F}$	2.7	3.1	3.2	2.7	(2.8)$^{J}_{5}$	4.5	(5.2)$^{D}_{5}$	(4.6)^{H}	(5.6)$^{D}_{5}$	5.8	6.0	6.2	5.6	5.7	4.6	4.0$^{J}_{5}$	3.8	2.5	(2.3)$^{D}_{A}$	2.1	2.7
20	3.1$^{J}_{3}$	3.2^{S}	3.3	3.6	3.8	3.1	2.8	2.8	4.8	4.9	5.0	6.9	6.6^{K}	5.6^{V}	5.8	5.4	5.6^{H}	4.6	3.0	(2.0)$^{D}_{A}$	(1.8)^{S}	[1.9]^{S}	2.0$^{J}_{3}$	2.1
21	2.3	2.5	3.1	3.4^{S}	3.3	3.1	2.8	2.7	4.3	5.0	5.6	6.0	C	C	5.5	5.4	5.5	4.9	3.8	3.1	2.7	2.6	2.6	2.6
22	2.6	(2.8)^{S}	3.4	3.7	3.5	(3.4)^{S}	2.5	2.6	4.5	5.3	(5.0)$^{D}_{5}$	(5.7)^{H}	6.6	6.2	6.0	6.3	5.7	5.2	3.7	2.7	2.2$^{F}_{5}$	1.8$^{J}_{3}$	1.9$^{J}_{3}$	2.0$^{J}_{3}$
23	2.0$^{F}_{5}$	2.3	2.9^{S}	3.5	(3.9)$^{D}_{5}$	3.5$^{J}_{5}$	2.7	3.0	(4.4)$^{D}_{A}$	4.1	4.5	5.3	6.4	6.2	5.3$^{F}_{5}$	5.4	5.3	4.4	3.2	2.9	2.5$^{F}_{5}$	2.3	(2.3)$^{F}_{A}$	(2.8)$^{D}_{F}$
24	(2.8)$^{F}_{F}$	(2.8)$^{D}_{F}$	(2.8)$^{F}_{F}$	(3.1)$^{D}_{F}$	(4.6)$^{D}_{5}$	3.0^{F}	(2.7)$^{D}_{F}$	2.9	3.8	4.9	5.8	6.4	6.2	6.0	5.7	4.7	4.9	4.3	3.5	2.0	(1.7)$^{D}_{5}$	S	S	2.0
25	2.3^{F}	2.4^{F}	(2.7)$^{J}_{F}$	(2.9)$^{J}_{F}$	(3.9)$^{J}_{F}$	(4.1)$^{J}_{5}$	(2.5)$^{F}_{F}$	2.8	3.7	5.4	5.8	6.8	6.3^{F}	5.5	5.7	5.8	5.2	4.2	3.4	3.1^{S}	2.3	2.4	2.5^{F}	2.5^{F}
26	2.9	3.0	3.1$^{F}_{5}$	3.4$^{J}_{F}$	(3.5)$^{F}_{5}$	(3.3)$^{F}_{5}$	2.7$^{J}_{5}$	(2.6)$^{J}_{F}$	4.3	5.2	5.8	7.1	6.5	6.0	5.7	5.6	5.3	4.5	3.6	3.1	(2.1)$^{F}_{5}$	(1.9)$^{D}_{5}$	1.8$^{J}_{F}$	1.8$^{J}_{F}$
27	^{K}1.8$^{J}_{F}$	^{K}(1.7)$^{J}_{F}$	F^{K}	F^{K}	F$^{K}_{K}$	^{K}(2.7)$^{F}_{F}$	^{K}(2.3)$^{D}_{F}$	^{K}(2.5)$^{F}_{F}$	4.3^{K}	4.8^{K}	6.3^{K}	7.5^{K}	6.0^{K}	6.0^{K}	5.6	6.2	5.3	5.0	5.1	3.3	3.5	2.4	2.9	3.1
28	3.2	3.1$^{F}_{5}$	3.2	3.5^{F}	4.0	3.8	2.7	2.8$^{J}_{5}$	4.5	5.2	6.4	6.8	7.1	6.0	6.2	6.1	5.8	5.0	3.2$^{F}_{5}$	2.1	(1.8)$^{J}_{3}$	[1.8]$^{A}_{5}$	(1.8)$^{J}_{3}$	(1.7)^{S}
29	[1.8]^{J}	(1.9)^{S}	2.4$^{F}_{5}$	(3.0)$^{F}_{F}$	3.3^{S}	3.0^{F}	2.3	2.3	4.2	5.1	6.0	6.4	6.2	6.2	5.5	5.3	5.2	4.3	3.4	3.0^{F}	2.5^{F}	2.3^{F}	(1.8)$^{D}_{F}$	F
30	F	F	(1.7)$^{J}_{H}$	(2.5)^{F}	(3.9)$^{D}_{F}$	(3.8)$^{D}_{5}$	(2.5)$^{F}_{5}$	2.4$^{F}_{5}$	3.9	4.8	5.2	6.1	6.4	5.6	5.8	5.6	5.4	4.3^{F}	3.4$^{F}_{5}$	2.3	(1.7)$^{J}_{3}$	S^{F}	S^{A}	S^{A}
31	(1.8)$^{J}_{3}$	(1.9)$^{F}_{5}$	(2.0)$^{J}_{F}$	[2.9]$^{F}_{5}$	3.8^{F}	3.5$^{J}_{F}$	(2.9)$^{D}_{F}$	2.6$^{F}_{5}$	4.5	5.0	5.2$^{J}_{5}$	5.9	6.1^{S}	5.8	5.6	5.5	4.3	4.6	3.8$^{J}_{3}$	3.4	(3.0)$^{D}_{3}$	(2.5)$^{D}_{5}$	(2.1)$^{F}_{5}$	(1.9)$^{J}_{3}$
Median	2.4	(2.7)	3.0	3.0	3.5	3.2	2.7	2.8	4.5	5.2	5.3	6.2	6.3	6.0	5.8	5.6	5.5	4.6	3.4	2.9	2.5	2.3	2.1	2.1
Count	29	29	28	28	30	31	31	31	31	30	30	31	30	30	31	31	31	31	31	31	29	24	25	27

Sweep 1.0 Mc to 23.0 Mc in 2.5 min

Manual ☐ Automatic ☒

U.S. GOVERNMENT PRINTING OFFICE 1946 O - 702515

TABLE 51

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form accepted June 1946

IONOSPHERIC DATA

foF2 (Characteristic), Mc (Unit), December (Month), 1953

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Scaled by: Mc C. E.J.W., J.W.P.

Lat. 38.7°N, Long. 77.1°W — 75°W Mean Time

Calculated by: Mc C. E.J.W., J.W.P.

Day	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330
1	2.2	2.9	3.2	3.0 K	3.6	3.5	(2.9) P S	4.8	5.6	(5.2) J S	6.2 J S	6.2	5.6 H	6.8	6.2	(5.5) J S	(4.8) P S	4.3	(2.8) J S	2.5	2.4	2.2	2.1	2.2 F
2	3.0	3.2 F S	2.8 F	3.0 F	3.1 F	3.6 F	(2.7) F S	(4.9) H	(5.2) H	6.4	6.1	6.7	6.1 H	6.4	6.1	5.8	5.2	(3.5) S	(3.0) F	(2.6) F	2.3 F S	(2.0) J F	(2.1) J A	2.7
3	3.2	3.7	3.8	(3.1) S	3.8	3.1 F S	3.6	4.7	5.7	5.4	6.0	6.6	6.8	6.2	6.2	5.6	5.6	4.2 F S	3.8 F S	3.6 S	3.4 S	3.1 S	2.8 S	3.5 F S
4	(3.1) F S	(3.9) F S	4.2 S	4.2	4.3	3.8 F	3.5 S	(4.4) J H	6.5	(5.0) J S	(5.0) H	7.0	6.7	6.7	6.8	5.5	5.6	4.5 S	3.3	2.7	3.8	4.8	2.7	2.4 F
5	2.8 F	3.1 F	2.9	2.7	2.9 V	2.7	2.6	4.3 A	5.0	5.8	4.9	6.6	5.4	6.0	5.8	6.3	4.6	3.9	3.7	2.5	2.1	1.9	(1.7) J S	1.8
6	(1.8) J S	(2.1) F S	2.5	2.8 F	2.8 F	2.6 S	(2.3) F S	4.4	5.4	5.6	5.2	(5.8) P N	6.4	6.1	6.0	5.4	4.9	4.5	3.6	3.1	2.3	2.1	2.5	(2.1) J S
7	(2.4) P F	F	F	4.0	3.8	3.2	2.8	4.3	5.2	5.4	5.7	6.0	6.1	5.9	5.6	5.6	5.4	4.2	2.9	A	A	2.4	2.6 F	3.1
8	(3.5) F	(3.6) F	(3.2) J F	(3.1) F	(3.3) J F	(3.5) J S	(3.2) J S	4.2	6.2	5.9	C	C	7.2	6.8	6.2	5.5	5.2	4.3	(3.6) F S	3.3	2.8 F	2.3 F	2.6	(3.2) J S
9	(3.5) J F	3.9	4.2 F	4.0	3.7 F	3.3	3.0 F	4.3	A	A	5.7	6.2	6.8	6.3	6.2	6.7	6.0	4.8	3.8	2.5 F	2.2 F	2.3	(2.3) F	(1.9) F
10	(2.1) F	(3.0) F	(3.2) J F	(3.7) F	3.5 F	3.4	2.7 F	4.5	(6.2) J S	(5.6) P F	(5.6) S	6.0	6.2 F S	(6.0) J S	5.8 F S	6.4	5.4 F S	4.1	3.9	(3.6) F S	[2.4] F A	(1.9) F A	[1.9] F A	(1.9) F A
11	1.9 F	[3.0] F	3.4 F S	3.3 F S	3.5	3.1	2.7	3.6	4.9	5.6 H	5.6	6.8	6.4	6.8	6.4	5.7	6.6	6.2	4.8	4.6	3.2	[3.2] A	[2.8] H	[2.4] A
12	2.7 F	3.0	2.7	2.6 F	2.6	(2.2) J F	2.1 F	3.2	4.0	(4.4) J H	4.9 H	5.6	5.9	(6.1) H	5.5	5.5	4.6	4.3	3.2	2.8	2.6	2.2	1.9	[2.1] A
13	(2.3) J A	(2.8) J F	(3.1) J F	2.9	2.4	2.7 F	2.4	3.3	4.3	4.3	5.0	5.5	6.0	5.4	5.1	6.3	5.2	3.4	[2.7] A	2.0	A	A	A	(2.2) F
14	(2.7) F S	(2.7) F	(2.4) A	(2.6) F	[2.8] A	(2.3) F	(2.0) F	3.6	(4.8) P S	(4.9) P S	(4.5) F	6.6	6.2 F	6.0	5.6	5.7	5.2	3.7	(2.4) F	(2.5) F S	(2.3) P F	F	F	(2.1) P
15	(2.5) F A	F	..	F	(3.5) J S	(3.6) J S	2.7 F	4.0	5.0	(5.0) J H	5.6	7.0	(6.8) S	5.9	5.4	5.2	5.4	3.9	3.0	2.1 F	1.9	1.9	2.0 F	(2.3) F
16	2.5 F	[2.2] F	(2.5) F	(2.8) P F	(2.7) P F	(2.1) J F	(2.0) J F	3.3	4.7	4.9	5.1 V	5.0	6.3	6.6	5.6 J S	5.3	5.7	3.2 F	(2.2) F S	(2.4) F S	A	A	A	A
17	A	A	1.9	2.2 F	2.5 F	(2.6) F F	(2.2) P F	(3.5) J S	4.5	5.4	5.4	6.7	6.7	5.7	6.0	5.4	(4.6) S	3.7	3.0	2.1 F	2.2	2.3	2.1 F	2.4
18	[2.6] A	(2.6) P	2.8 F	3.0 F	3.0	2.6	2.4	3.3	4.5	4.8	6.0	6.8	6.4	6.0	5.4 J S	5.7	4.7	3.8	2.7	1.8 S	(1.7) P S	A	A	(1.9) P S
19	(1.9) F S	(2.0) F S	2.3	2.9	3.1	2.7	2.5	3.7	5.2	4.8	[5.1] H	6.3	5.3	5.6	5.5	5.6	5.0	3.9	3.7	2.8	2.4	(2.0) V S	(2.4) J S	2.8 F
20	3.1	3.3	3.4	3.7	3.6	3.0	2.7	4.0	4.5	5.3	5.7	7.0 H	5.7	5.8	5.8	5.4	4.9	3.2	2.9	[1.9] S	(1.9) P S	(1.9) J S	2.0	(2.2) J S
21	2.3	2.9	3.2	3.3	3.2	2.9	(2.5) P S	3.6	4.7	4.7	5.2	5.8	C	C	5.0	5.6	5.4	4.2	3.5	2.8	2.6	2.5	2.5	2.6
22	(3.0) J H	3.1	3.4	3.7	3.5	3.2	2.1	3.8	5.0	4.9	5.5	6.2	6.4	6.6	6.2	5.5	5.4	4.4	3.2	2.4 F	(1.8) J S	1.9 S	(2.1) J S	1.9 S
23	2.1 S	2.4	(3.3) J S	(3.6) J S	(4.2) P S	2.9	2.6	3.7	4.8	4.8	4.8	5.8	6.2	5.6	(5.0) P F	5.6	4.8	4.3	3.2	2.8	2.4	(2.5) P F	[2.6] S	(2.9) J F
24	(2.5) P F	[2.5] F A	2.9 F	(3.5) J F	(3.5) P F	2.9 F	2.4 F	3.5	4.3	5.1	6.0	6.5	6.2	5.6	5.3	5.4	4.7	4.0	(2.5) J V	1.8	S	S	(1.8) P S	2.1 F S
25	(2.4) F S	2.7 F	[2.8] F	(3.7) J S	4.0 S	(3.5) J S	(2.3) J S	3.5	5.0	5.8	6.2	6.6	5.8	5.7 J F	5.8	5.2	4.6	3.9	3.3	2.7	2.4	2.5	2.5	2.6 F
26	2.8	3.0 F S	(3.1) P S	(3.2) F	3.4 F S	(2.1) J S	(2.4) F S	3.8 S	4.5	(5.1) P S	7.0	6.6	6.0	5.7	5.7	5.4	4.9	3.9	3.5	2.6 F S	1.9 J F	(1.9) J S	(1.8) J S	(1.8) J F
27	K 1.7 J F	[2.0] F A	K (2.4) J F	F K	F K	K [2.5] F A	K (2.4) F A	3.5 S	4.8 K	5.6 K	6.9 K	6.9 F K	5.8 K	6.2 K	6.0	5.5	5.2	5.7	3.8	2.9	2.3	2.5	2.9	3.1
28	3.2	(3.1) F S	3.5	3.8	4.3	3.9	3.6	3.9 S	5.2	6.0	7.0	7.0	6.6	6.2	6.4	5.8	5.4	3.9 F S	(2.4) F A	[2.0] A	[1.8] A	(1.8) A S	[1.8] A S	S
29	(1.8) S	2.0 J S	(2.5) J F	3.3	3.0	(2.4) F S	2.1 F S	3.5	4.7	5.6	6.0	6.3	6.5	5.7	5.4	5.0	5.0	3.6	3.1 F	2.6 F	2.3 F	2.1 F	F	F
30	F	F	2.0 F S	[2.1] F S	(4.0) P S	(3.0) F S	2.3 F S	3.3	4.4	4.8	5.4	6.5	5.8	5.9	5.6	5.5	5.0 S	3.7 S	3.1 F	(1.7) J S	F S	F S	A S	A S
31	(1.8) P S	1.9 F S	(2.7) P S	[3.0] F S	(3.7) F S	(3.1) F S	2.7 F S	3.0	4.6	4.8	5.6	6.1	6.4	5.6	5.5	4.7 F	4.5	4.0	3.7	(3.5) J F	(3.1) J F	2.3 F	(2.2) F A	F S
Median	(2.5)	2.9	2.9	3.2	3.5	3.0	2.5	3.7	4.8	5.2	5.6	6.4	6.2	6.0	5.8	5.5	5.2	4.0	3.2	2.6	2.3	2.2	2.2	2.2
Count	29	27	27	27	30	31	31	31	30	30	30	30	30	30	31	31	31	31	31	30	26	26	26	26

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U.S. GOVERNMENT PRINTING OFFICE 1948 O - 709118

TABLE 52

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

h'F1 (Characteristic), Km (Unit) December (Month), 1953

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

Scaled by: F.J.Mc E.J.W., J.W.P.

Calculated by: F.J.Mc E.J.W., J.W.P.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										Q	200	190	200 H	180 H	210	210								
2										210	210	190 H	180 H	210	210	200	190							
3										210	210	220	200	230	200	200								
4										(210) A	(190) A	(220) A	230	220	230	Q								
5										A	230	200	240	220	220	220								
6										220	210	230	210	210	210	220								
7										Q	Q	210	220	[220] A	230	200								
8										Q	A	C	240	220	210	210								
9										A	A	A	A	A	A	A								
10										210	210	(220) H	200	220	220	Q								
11										240	210	200 H	210	200	220	220	240							
12										(230) A	290 H	210	200	290	200	200								
13									210	200 H	A	A	190 H	200	210	230								
14										(190) H	230	210	200	200	210	(210) A								
15										220	190	200	200	190	210	200								
16										Q	220	220	210	210	210	200								
17										200	210	200	200	210	200 H	200								
18										240	220	(240) A	200	200	200 H	220								
19										210	[200] A	200 H	210	210	230	230								
20										220	(210) A	210	210	210	220	210	210							
21										Q	Q	230	C	C	230	210	210							
22										Q	230	210	230	230	230	220								
23										210	210	220	200 H	210	200	200								
24										Q	230	230	190 H	200	200	210								
25										Q	220	220	200	200	220	220								
26										220	210 H	210 H	210	210 H	200 H	200 H								
27										Q F	220 K	210 K H	180 K H	220 K	230	240	210 H							
28									200	210	220	190 H	190 H	200	210	230								
29										230	220	190 H	210	190 H	210	210								
30										Q	230	220	(190) A	200	250	230								
31										230	220	210	200 H	A	A	(210) A	(180) A							
Median									—	210	220	210	200	210	210	210	210							
Count									2	19	26	28	29	28	29	28	6							

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE 1946 O - 702510

Form accepted June 1946

TABLE 53

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D. C.

IONOSPHERIC DATA

foF1 (Characteristic), Mc (Unit), December (Month), 1953

National Bureau of Standards (Institution)

Observed at Washington, D. C.

Lat. 38.7°N, Long. 77.1°W

75° W Mean Time

Scaled by: F.J.McC. E.J.W., J.W.P.

Calculated by: F.J.McC. E.J.W., J.W.P.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										Q	(3.5)L	(4.0)P	[4.0]L	4.0H	(3.6)L	L								
2										L	L	L	L	L	L	L	L							
3										L	L	L	L	L	L	3.2								
4										L	L	L	L	L	L	Q								
5										A	L	(3.9)L	L	L	L	L								
6										L	L	L	L	L	(3.7)L	L								
7										Q	Q	L	L	A	L	3.6								
8										Q	A	C	4.0	L	L	L								
9										A	A	A	A	A	A	A								
10										L	L	L	L	L	L	Q								
11										L	3.9H	[3.9]L	3.9	3.6	L	L	L							
12										L	L	3.8	3.7H	3.6	L	L								
13									L	L	A	A	L	3.6	L	L								
14										L	L	L	(3.8)L	(3.4)L	L	L								
15										L	L	3.7	L	L	L	L								
16										Q	L	(3.7)L	3.9	(3.7)L	3.6	L								
17										2.7	L	L	L	L	L	L								
18										L	L	L	L	3.6	L	L								
19										L	L	L	L	L	L	L								
20										L	L	3.6	3.9	L	L	L	L							
21										Q	Q	L	C	C	L	L	L							
22										Q	L	L	(3.9)L	L	L	L								
23										L	L	(3.8)L	(3.8)L	(3.7)L	L	L								
24										Q	L	3.9	(3.7)H	3.6	3.4	L								
25										Q	L	(3.7)L	(3.8)L	3.6	L	L								
26										L	3.6	[3.6]L	(3.6)L	L	L	L								
27										Q K	(3.5)L K	3.7H K	L K	L K	L	L	L							
28									L	L	L	L	L	L	L	L								
29										L	L	3.8H	3.9	(3.6)H	L	L								
30										Q	L	3.8	L	L	L	L								
31										L	3.7	3.7	3.9H	L	L	L	L							
Median									—	—	3.6	3.8	3.9	3.6	—	—	—							
Count									—	1	5	15	14	11	4	2	—							

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE 1946 O - 702319

TABLE 54

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

h'E (Characteristic), Km (Unit) December (Month), 1953

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Lat. 38.7°N, Long. 77.1°W

75° W Mean Time

Scaled by: F.J. Mc C. E.J.W., J.W.P

Calculated by: F.J. Mc C. E.J.W., J.W.P

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									A	A	(110)^{A}	[110]A	110	110^{H}	110	110	<140^{S}							
2									(130)^{S}	110	[110]A	110	100	(110)^{B}	110	(110)^{A}	(120)^{S}							
3									A	A	(110)A	110	110	100^{H}	100^{H}	100	A							
4									(120)^{S}	120	100	(100)A	(100)A	100	(100)^{A}	(100)^{A}	A							
5									A	A	(100)^{A}	110^{H}	110	110^{H}	(120)^{A}	(120)^{A}	S							
6									(130)^{S}	(120)^{S}	120	110	110^{H}	110	110^{H}	110	A							
7									(130)^{S}	110	100	110	100	[100]A	100	A	A							
8									(120)^{S}	110	110	C	A	A	110	(120)^{A}	A							
9									(130)^{S}	100^{H}	[100]A	100	100	110	100	100	A							
10									A	A	A	A	(100)^{A}	(100)^{A}	[120]A	(110)^{A}	A							
11									(130)^{S}	120	100	[100]A	100	(120)^{A}	120	(110)^{S}	A							
12									A	A	(110)A	110	[100]A	100	100^{H}	[100]A	110							
13									A	110	A	A	A	A	A	A	A							
14									A	A	(120)^{A}	A	A	(100)^{A}	(100)^{A}	A	A							
15									A	100	A	A	A	A	1100)^{A}	100	S							
16									S	(120)^{A}	(110)^{A}	(100)A	(100)A	100	100	A	A							
17									S	110^{H}	[100]A	100	110	100	100	110^{H}	140^{H}							
18									S	110	(110)A	A	A	A	110	A	A							
19									(140)^{S}	(120)^{A}	(120)A	A	A	(110)^{A}	110	110	A							
20									S	(120)^{S}	(110)^{A}	110	110	110	110^{H}	110	(130)^{S}							
21									S	120	[120]A	(120)A	C	C	100	100^{H}	A							
22									(140)^{S}	110^{H}	110^{H}	A	(110)^{A}	100	100	(110)^{A}	(140)^{S}							
23									A	(120)^{A}	A	A	110	[110]A	110	110	A							
24									A	(120)^{A}	(110)^{A}	[100]A	100)^{A}	110^{H}	110	(110)^{A}	A							
25									S	(120)^{A}	[120]A	110	110	110^{H}	110	110	(130)^{S}							
26									S	110	110	110	110	110	110^{H}	120^{H}	<150^{S}							
27									S^{K}	120^{H}K	A^{K}	A^{K}	110^{H}K	110^{H}K	110	120	(120)^{S}							
28									S	C	110	110	120	A	A	110	A							
29									A	100	110	120	110	A	110	120^{H}	(120)^{S}							
30									<150^{S}	110	110	110	A	A	A	A	A							
31									A	120	110	110	110	110	110	A	A							
Median									(130)	120	(110)	110	110	110	110	110	120							
Count									9	24	26	21	23	23	28	24	8							

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U.S. GOVERNMENT PRINTING OFFICE 1948 O - 303519

TABLE 55

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

foE (Characteristic), Mc (Unit), December (Month), 1953

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75° W Mean Time

Scaled by: F.J.Mc C. E.J.W., J.W.P.

Calculated by: F.J.Mc C., E.J.W., J.W.P.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									A	A	2.9F	[2.9]A	2.9	2.8	2.6	(2.2)S	1.9H							
2									(2.0)H	2.4	[2.6]A	2.7	2.8	[2.8]P	2.6	[2.2]A	1.8							
3									A	A	A	2.8	2.9	[2.8]A	2.8P	A	A							
4									(2.0)F	2.3	2.5	[2.6]A	2.8	(2.8)A	(2.6)A	(2.3)A	A							
5									A	A	(2.5)A	(2.7)A	2.7	2.7H	2.6H	2.3	S							
6									2.0	2.3	2.6H	2.7	2.7H	2.7	2.6H	(2.2)A	A							
7									(1.8)H	2.2	2.5	2.6	2.6	A	A	A	A							
8									1.8	2.2	A	C	A	A	2.5	2.4	A							
9									A	2.3H	[2.4]A	2.6	2.8	2.6	2.5	A	A							
10									A	A	A	A	(2.8)A	(2.7)A	[2.6]A	(2.4)A	A							
11									(1.8)P	2.2	2.4	[2.5]A	2.6	2.6	2.4	2.1	A							
12									A	A	(2.5)P	2.7	[2.7]A	2.7	2.5H	[2.4]A	2.4F							
13									A	2.2	A	A	A	A	A	A	A							
14									A	(2.2)A	(2.5)A	A	A	(2.7)A	(2.4)A	A	A							
15									A	A	A	A	A	A	2.5	2.3	A							
16									A	A	A	A	A	(2.6)P	(2.4)A	A	A							
17									S	2.2H	[2.5]A	(2.8)P	(2.8)P	2.7	(2.5)P	(2.2)H	1.9H							
18									S	2.2	(2.6)S	A	A	A	(2.4)A	A	A							
19									(2.0)P	(2.2)P	(2.4)A	A	A	(2.7)A	2.6	2.2	A							
20									S	2.3H	(2.5)A	2.7	2.8	2.7	2.5H	2.2	(2.0)H							
21									S	2.2	[2.4]A	2.7	C	C	2.6	(2.4)H	A							
22									1.8H	2.3H	2.5H	[2.6]A	(2.7)A	2.7	2.5	2.3H	1.8							
23									A	(2.2)A	A	A	2.7	[2.6]A	2.5	2.3	A							
24									A	(2.3)A	(2.4)A	A	A	(2.7)H	2.5	(2.3)A	A							
25									S	(2.2)A	[2.5]A	2.8	2.7	2.7H	2.6	2.3H	1.9H							
26									S	(2.2)P	2.5	2.7	2.7	2.6	2.4H	2.3H	1.8H							
27									SK	2.3HK	AK	AK	2.6HK	(2.5)PK	(2.5)P	2.3	1.7							
28									S	C	2.6	2.8	2.8	A	A	2.3	A							
29									A	2.2	2.5	2.6	(2.6)A	A	(2.5)A	2.3H	(2.0)P							
30									(1.8)S	2.2	2.6	2.8	A	A	A	A	A							
31									A	2.2	2.5	(2.6)A	(2.6)A	2.5	(2.4)A	A	A							
Median									(1.8)	2.2	(2.5)	2.7	2.7	2.7	2.5	2.3	1.9							
Count									9	23	23	20	21	22	27	22	16							

Sweep 1.0 Mc to 25.0 Mc in 0.85 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE: 1948 O - 702810

Form adopted June 1948

TABLE 56

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

IONOSPHERIC DATA

Es (Characteristic), Mc,Km (Unit) December (Month), 1953

Observed at Washington, D.C.

Lat. 38.7°N, Long 77.1°W

75° W Mean Time

National Bureau of Standards (Institution)

Scaled by: F.J.Mc E.J.W., J.W.P.

Calculated by: F.J.Mc E.J.W., J.W.P.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	3.9Y/100 H	E	E	E	E	E	2.3 (130)S	4.6Y/120	3.8/120	3.0/110	3.7Y/110	G	G	G	G	G	3.6Y/100	4.2/110	6.8Y/120	4.8Y/110 H	E	E	E
2	E	E	E	E	E	7.2Y/110	4.3Y/110	E	G	2.8/140	3.8/110	G	G	G	G	2.5/110	2.1/100	2.3/100 H	1.9Y/110	2.4/100	2.3/100	2.4/100	3.4/110	4.3/110
3	E	E	E	E	E	E	E	3.6/110	3.3/100 H	3.2/110	3.8/110	G	3.0/120	3.1/110	3.0/120	3.5Y/110	2.4/110	E	1.8/110	E	E	E	E	2.2/100
4	E	3.2Y/120	E	E	3.9Y/130	E	E	E	G	3.7/130	3.7Y/130 H	3.6Y/100 H	3.0/100	4.0Y/120 H	4.2/110	5.2/100 H	4.2/100 H	3.7/110	3.6/110 H	3.0/110 H	7.6Y/110	3.0/100	E	E
5	E	E	E	E	E	E	E	E	3.6/100	4.9/100	4.2Y/100 H	3.9Y/100	4.2Y/100	2.8Y/100	4.3Y/100	5.0Y/100	3.1Y/100	2.8Y/100	E	E	E	4.3/120	E	E
6	E	3.5Y/140	E	E	E	E	E	E	G	3.6Y/110	G	G	G	G	G	3.7/110	5.0Y/110	4.6/120 H	6.6/110	4.4/100	4.8/100	5.7Y/110	2.5/110	2.6Y/110
7	E	E	E	E	E	2.2/130	E	2.7/110	G	G	2.9/100	G	3.2/120	4.7/100	4.5/110	3.8/100	5.7/100	4.6/100	3.7/100 F	3.5/100	6.4/100	4.6/100	3.3/100	2.7/100
8	2.4/110	3.6/120	3.5/110	E	E	E	3.8/100	3.8/100	2.1Y/100	2.8/120	5.0/110	L	3.7/110	4.2/100	2.4/100	2.0/100	2.6/100 H	3.7/120	6.6/110	2.3Y/140	E	2.3/100	E	2.1/100
9	2.4/100	2.7Y/100	6.4Y/120	E	E	E	E	7.0Y/100 H	6.6/120	7.2/120	6.8/100	6.4/120	5.7/120	4.8/110	4.6/110	7.2/110	6.6/110	6.6/110	2.2Y/110	2.8Y/110	E	E	E	4.5/100
10	6.8/100	3.9/100	2.8/100	3.9/120	E	E	E	E	6.6/110	3.0Y/120	3.3Y/110	4.2Y/100	3.5/100	3.5Y/100	3.5/100	2.4/100	3.6Y/100 H	3.6Y/100 H	2.4Y/100 H	3.0/110	3.9Y/110	4.3/100	3.6Y/100	3.4/100
11	2.4Y/100 H	E	E	E	E	E	E	4.9/110	G	G	G	4.6/100	4.2Y/100	2.6Y/100	2.4/100	G	2.2/100 H	E	2.2/100 H	1.7/100	1.9/100 H	3.3/120	6.0/100	3.0/110
12	4.4/110	E	6.2Y/120	E	E	E	E	4.7Y/100	3.7/120	9.4Y/110	2.6/110	G	2.7/110	G	3.7/120	2.4/100	G	2.2/100 H	2.4Y/100	E	E	E	E	4.5Y/110 H
13	5.0/100	3.5/100	E	E	E	2.3/120	2.4/100	3.9Y/100 H	4.5/100	G	5.5/110	2.4/100	4.3/100	2.6/100	3.5/100 H	3.2/100	3.0Y/110	3.7/100	7.0/100	5.0/100	6.8/100 H	3.2/100 H	3.3/100	3.7/100
14	2.3/100	3.4/100	4.4/110	4.5/100	6.6/100	7.0Y/100	3.7/100	2.4/100	3.7/100	4.4Y/100	6.1/100	3.0/100	6.2Y/100	4.3/100	2.9Y/100	3.7Y/100	3.7Y/100	2.3Y/100	E	E	E	E	2.3/110	3.2/120
15	2.3/120	4.4Y/100 H	4.3Y/110	3.7/100	2.6Y/110	3.4Y/90 H	2.7/100	2.2Y/100	3.6/100	3.0/110	3.5/100	3.0/100	4.5Y/100	5.4/100	3.7/100	G	2.1/140	E	E	E	E	E	2.9/110	3.7/100
16	3.2/100	2.9Y/100	6.3/100	E	E	E	E	E	3.0/100	4.2/100	4.2/100	3.8/100	3.8Y/100 H	3.8/110	3.7/110	4.5/110	3.8/110	2.2/110	E	E	3.1/100	4.0/100	3.1Y/100 H	3.6/100
17	3.2/100	3.7Y/100	3.2Y/100 H	3.3Y/100	2.4Y/110	E	E	E	E	3.1Y/110	3.6/100	3.7/120 H	3.7/120	G	2.6/120	G	G	E	3.8Y/110	E	E	E	E	E
18	3.7/110	5.6/110	3.5/110	E	E	E	E	E	E	G	3.2Y/110	3.6Y/100	2.9/110	3.5Y/110 H	3.6/110	2.4/120	3.7/110	3.2/110	5.0/100	E	E	2.6/110	4.0/100	2.3Y/110
19	2.6/100	2.4/100	E	E	E	E	E	E	E	2.9Y/100	4.8/100	4.7Y/100	3.6/100 H	3.4/110	3.7/120	3.6/120	5.4Y/110	3.0/100	3.4Y/120	5.6/110	5.0/110	3.9/100	E	E
20	E	E	E	E	E	E	E	E	E	G	2.6/100 H	G	G	G	G	G	G	2.4/90	2.5/90	2.5/90	E	E	2.6Y/110	4.5/100
21	3.7/100	3.0/100	E	E	E	3.6Y/110	3.2Y/110	3.6Y/100	3.7/110	4.8/110	3.4Y/100	3.3Y/100	G	C	G	G	3.1/100	2.4/100	E	2.7/100	E	E	E	E
22	E	E	E	E	E	E	E	E	C	G	6.6Y/100	3.5Y/110	2.8/110	G	G	1.8/100	G	E	2.3/100	2.2/100	E	2.7/90	E	E
23	E	E	2.6Y/130	E	E	E	E	E	4.5/100	3.2/100	3.3Y/100 H	2.6/100 H	2.3Y/90	2.6/110	G	G	3.1/110	1.8/110	E	E	E	E	3.8/100	3.1/120
24	3.5/120	4.0/110	3.5/120	E	3.0Y/120	2.2/120	3.9Y/110	E	6.6Y/100	3.2Y/100	3.7Y/100 H	4.5/110	3.4Y/100	3.3/20	G	2.3/110	2.2/120 H	E	E	E	E	4.0/120	3.4/110	E
25	E	E	2.4/110	2.7/110	2.9Y/100	2.3/100	2.4/100 H	E	3.4Y/90	2.8Y/120	3.3Y/110	G	G	G	G	G	G	E	E	E	E	E	E	E
26	E	E	E	E	E	E	E	E	2.0/130	3.0Y/120	G	G	G	G	G	G	G	E	E	E	E	E	E	E
27	E	E	2.2/110	2.4/110	2.3/110	2.3Y/110	2.2Y/110	2.3Y/110	G	G	2.7/110	2.9/110 H	G	G	G	G	G	E	E	2.5/120	3.7/110	3.9/110	2.9/110	2.3Y/110
28	2.1/120	E	2.7/110	2.3Y/100 H	E	2.3/120	2.2/130	7.1Y/120 H	G	G	G	2.0/100	2.7/100	3.8/100	4.0/100 H	G	2.2/100 H	4.2Y/110	4.5/110	4.5/110	5.0/110	4.5/100	3.7Y/100	2.4Y/110
29	E	E	E	3.6Y/100	3.7Y/100	3.0/100	2.4/100	2.4/100	2.1/140	2.7Y/100	G	G	3.4/120	3.4Y/110 H	2.8Y/110 H	2.9Y/110 H	G	E	E	E	3.0Y/120	2.1/100	1.8Y/110	E
30	E	E	E	E	E	3.6Y/110	E	E	3.7Y/90	G	2.9/130	3.0/120	3.1/110	3.0/110	4.3/110	2.6/110	2.1/110	E	E	E	E	E	4.3/110	2.3/130
31	E	E	E	E	E	E	E	E	1.9/120	2.5/120	2.7/120	2.8/120	3.0/110	4.4/110	3.7/110	3.2Y/110	2.2/120 H	E	2.4/130	2.9/120	E	E	2.4/120	2.3/120
Median	* *	* *	* *	* *	* *	* *	* *	* *	2.1	3.0	3.3	3.4	3.0	3.2	2.9	2.4	2.2	2.3	2.2	2.2	* *	2.3	2.4	2.3
Count	31	31	31	31	31	31	31	31	31	31	31	30	31	30	31	31	31	31	31	31	31	31	31	31

* * MEDIAN fEs LESS THAN MEDIAN foE, OR LESS THAN LOWER FREQUENCY LIMIT OF RECORDER.

Sweep 1.0 Mc to 23.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE 1948-O - 702519

TABLE 57

Central Radio Propogation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1948

IONOSPHERIC DATA

(MI500)F2, ____ December, 1953
(Characteristic) (Unit) (Month)

National Bureau of Standards
(Institution)

Observed at Washington, D.C.

Scaled by: Mc C. E.J.W., J.W.P.

Lat 38.7°N, Long. 77.1°W

75° W Mean Time

Calculated by: Mc C. E.J.W., J.W.P.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	2.1	2.2	2.2	2.1	2.1	2.3	$(2.4)^{J}_{S}$	2.4	2.7	2.6	$(2.6)^{D}_{S}$	2.3	2.2	2.5^{-}	2.5^{-}	2.6	2.6	$(2.4)^{D}_{S}$	2.3	2.3	2.3	2.3	2.0	2.2^{F}
2	2.1	2.2^{F}	2.3^{F}	2.2^{F}	$(2.2)^{F}_{D}$	2.3^{F}	2.3^{F}	2.3	2.2	$(2.2)^{H}$	2.7	2.4	2.6	2.4^{H}	2.5	2.5	$(2.5)^{J}_{S}$	2.5	$(2.4)^{F}$	$(2.4)^{F}$	$(2.4)^{F}_{S}$	2.2^{F}	$(2.0)^{F}_{S}$	2.0^{F}_{S}
3	$(2.1)^{F}_{S}$	$(2.2)^{F}_{S}$	2.1^{F}	2.2^{F}	2.3	2.3^{F}	2.2	2.4	2.4^{V}	$(2.5)^{D}_{S}$	2.6	2.3	2.4	2.6	5	2.3^{F}	2.4^{F}_{S}	$(2.6)^{F}_{S}$	2.3^{F}_{S}	2.2^{F}_{S}	2.2^{F}	2.4^{F}	2.2^{F}_{S}	2.2^{F}_{S}
4	2.2^{F}_{S}	2.2^{F}_{S}	2.3^{F}_{S}	2.2^{F}_{S}	2.2	2.3^{F}_{S}	2.3^{F}_{S}	$(2.3)^{F}_{H}$	$(2.5)^{S}$	$(2.5)^{J}_{H}$	2.9^{S}	$(2.2)^{F}_{H}$	2.5	2.3	2.4	2.3	2.5^{S}	2.5	2.3	2.4^{S}	2.2^{F}	2.2^{F}	22	2.1^{F}
5	2.1	2.1^{F}	2.2	2.1^{F}	2.2	2.2	2.1	2.4	2.7	2.6	2.6	2.3	2.6	2.5	2.6	2.5	2.6	2.4	2.1	2.5	2.2	2.0	$(2.0)^{J}_{S}$	$(2.0)^{J}_{S}$
6	$(2.1)^{J}_{S}$	$(2.1)^{D}_{S}$	2.2	2.2	2.4^{F}	2.4	2.4^{S}	2.3	2.6	2.6	2.5	2.4	2.2	2.3^{N}	2.4	2.4	2.5	2.4	2.2	2.4	$(2.4)^{A}$	2.1	2.0	2.1
7	2.2^{F}_{S}	$(2.2)^{D}_{S}$	F	F	2.3	2.3	2.2	2.3	2.5^{-}	2.5^{H}	2.4^{H}	$(2.4)^{S}$	2.3	2.3	2.5	2.6	2.7	2.4	2.2	2.3	A	A	$(2.0)^{S}$	$(2.1)^{F}$
8	$(2.3)^{F}$	$(2.2)^{F}$	$(2.2)^{J}_{F}$	2.1^{F}	$(2.3)^{F}$	$(2.0)^{F}$	$(2.3)^{F}$	$(2.3)^{J}_{S}$	$(2.3)^{S}$	2.6	2.7	C	2.3	2.3^{H}	2.3	2.5	2.5	2.3	$(2.1)^{H}$	$(2.2)^{S}$	$(2.4)^{J}_{S}$	$(2.1)^{J}_{F}$	2.1	$(2.0)^{F}$
9	$(1.9)^{D}_{F}$	$(2.1)^{F}$	2.3	2.3^{F}_{S}	2.3^{F}	2.4^{F}	2.0^{F}	2.3	$(2.5)^{A}$	A	A	2.4	2.5	2.4	2.4	2.4	2.5	2.5	2.4	2.2	2.4	$(2.4)^{E}_{S}$	2.0^{F}	$(1.9)^{F}$
10	$(2.1)^{J}_{S}$	$(2.0)^{F}$	2.2^{F}	2.2^{F}	2.2^{F}	2.3^{F}	2.4	2.4	2.5	$(2.5)^{F}_{S}$	2.6	2.5	$(2.2)^{F}_{S}$	2.5^{-}	2.4	$(2.5)^{D}_{S}$	2.6	2.5^{S}	2.1^{S}	2.4^{F}_{S}	$(2.3)^{F}_{S}$	A	F A	F A
11	$(2.2)^{F}$	$(2.0)^{D}_{F}$	$(2.1)^{D}_{F}$	2.2^{S}	$(2.2)^{J}_{F}$	2.3^{F}	2.2	2.4	2.4	2.4	2.0^{H}	2.1	2.4	2.4	2.2	2.5	2.2	2.3	2.3	2.2	2.1	2.4	2.0	1.9
12	2.0	2.1^{F}	2.2	2.1	2.0^{F}	2.0^{F}	1.9	2.3	2.4	2.4	2.4	2.2	2.3	2.5	2.4	2.4	2.4	2.3	2.3	2.2	2.0	2.3	2.1	$(2.1)^{S}$
13	A	$(2.2)^{A}_{F}$	$(2.2)^{J}_{F}$	$(2.0)^{F}$	2.0	2.1	2.0	2.3	2.4	2.5	2.4	2.3	2.3	2.4	2.2	2.4	2.4	2.4	A	$(2.4)^{A}$	A	A	A	$(2.2)^{A}$
14	2.1	$(1.9)^{F}_{H}$	$(2.1)^{F}$	$(2.3)^{A}$	A	$(2.4)^{A}$	$(2.4)^{F}$	$(2.4)^{J}_{F}$	$(2.5)^{J}_{S}$	2.5^{S}	2.5^{F}	$(2.5)^{D}_{F}$	$(2.4)^{F}_{S}$	2.6	2.5	2.6	2.5	2.6	2.4^{F}	$(2.3)^{D}_{S}$	$(2.4)^{D}_{F}$	$(2.4)^{D}_{F}$	F	F
15	$(2.2)^{D}_{F}$	$(2.1)^{D}_{F}$	F A	F A	$(2.2)^{J}_{S}$	$(2.3)^{J}_{F}$	$(2.4)^{F}$	2.4	2.5	2.4	2.5	2.4	$(2.1)^{J}_{H}$	2.4	2.0	2.6	2.6	2.3	2.3	2.3	$(2.2)^{J}_{S}$	$(2.1)^{S}$	2.1	$(2.0)^{J}_{F}$
16	$(2.0)^{J}_{F}$	$(2.0)^{F}$	$(2.0)^{J}_{F}$	$(2.0)^{D}_{S}$	$(2.1)^{D}_{F}$	$(2.2)^{F}$	$(2.4)^{J}_{F}$	$(2.2)^{J}_{F}$	2.6	2.5	2.6	2.4	$(2.4)^{J}_{S}$	2.4	2.5	2.5	$(2.6)^{J}_{S}$	2.5^{F}	2.4^{S}	2.2^{F}	$(2.2)^{D}_{H}$	A	A	A
17	A	A	2.0	2.1	2.1^{F}	2.3^{F}	$(2.3)^{D}_{F}$	$(2.6)^{D}_{S}$	2.6	$(2.6)^{D}$	2.8	2.3	2.3	2.4^{H}	2.4	2.5	2.5	2.5	2.4	$(2.4)^{S}$	$(2.3)^{S}$	2.3^{F}	2.2^{F}	2.1^{F}
18	$(2.1)^{D}_{H}$	2.1	$(2.1)^{S}$	$(2.1)^{J}_{F}$	2.4	2.4	2.4	2.3	$(2.4)^{J}_{S}$	2.5	2.3	2.5	2.3	2.5	2.4^{H}	$(2.5)^{J}_{S}$	2.5	2.3	$2.4)^{J}$	2.5^{S}	$(2.2)^{S}$	A S	A	$2.1)^{D}_{S}$
19	$(2.2)^{D}_{S}$	$(2.1)^{J}_{S}$	$(2.0)^{D}_{F}$	2.2	2.2	2.4	2.2	$(2.4)^{J}_{S}$	2.6	$(2.9)^{D}_{S}$	$(2.4)^{H}$	$(2.4)^{D}_{S}$	2.6	2.6	2.4	2.5	2.5	2.5	$(2.3)^{J}_{S}$	2.4	2.3	$(2.4)^{D}_{H}$	2.0	2.1
20	$(2.1)^{J}_{S}$	2.2^{S}	2.1	2.2	2.2	2.3	2.3	2.4	2.7	2.5	2.5	2.3	2.4^{H}	2.3^{V}	2.5	2.7	2.4^{H}	2.4	2.3	$(2.4)^{D}_{H}$	$(2.1)^{S}$	S	$(2.0)^{J}_{S}$	2.0
21	2.0	2.0	2.2	2.2^{S}	2.3	2.2	2.4	2.3	2.6	2.6	2.7	2.6	C	C	2.5	2.3	2.4	2.5	2.4	2.4	2.4	2.5	2.2	2.2
22	2.2	$(2.0)^{S}$	2.1	2.0	2.2	$(2.3)^{S}$	2.6	2.2	2.5	2.4	$(2.3)^{D}_{S}$	$(2.1)^{H}$	2.4	2.2	2.4	2.4	2.4	2.5	2.3	2.5	2.5^{F}_{S}	$(2.1)^{J}_{F}$	$(2.2)^{J}_{S}$	$(2.2)^{J}_{S}$
23	2.0^{F}_{S}	2.0	2.1^{S}	2.2	$(2.2)^{D}_{S}$	$(2.6)^{J}_{S}$	2.3	2.5	$(2.3)^{D}_{H}$	2.6	2.5	2.3	2.4	2.5	2.4^{F}_{S}	2.4	2.6	2.4	2.4	2.4	2.4^{F}_{S}	2.0	$(2.0)^{F}_{H}$	$(2.1)^{D}_{F}$
24	$(2.1)^{D}_{F}$	$(2.1)^{D}_{F}$	$(2.1)^{D}_{F}$	$(2.2)^{D}_{F}$	$(2.3)^{D}_{S}$	2.3^{F}	$(2.4)^{D}_{F}$	2.5	2.4	2.5	2.5	2.4	2.5	2.5	2.5	2.4	2.5	2.4	2.5	2.4	S	S	S	2.0
25	2.1^{F}	2.1^{F}	$(2.1)^{F}_{S}$	$(2.0)^{J}_{F}$	$(2.3)^{J}_{S}$	$(2.3)^{D}_{S}$	$(2.4)^{F}_{S}$	2.3	2.5	2.4	2.4	2.5	2.5^{F}	2.4	2.4	2.4	2.5	2.5	2.3	2.3^{S}	2.2	2.1	2.2^{F}	2.0^{F}
26	2.1	2.0	2.1^{F}_{S}	$(2.0)^{J}_{F}$	$(2.3)^{F}_{S}$	$(2.4)^{D}_{S}$	2.4^{F}_{S}	$(2.3)^{J}_{F}$	2.6	2.6	2.3	2.5	2.4	2.5	2.4	2.4	2.6	2.5	2.2	2.3	$(2.3)^{F}_{S}$	$(2.0)^{D}_{S}$	$(2.1)^{J}_{F}$	$(2.0)^{J}_{F}$
27	$^{K}(2.1)^{J}_{F}$	$^{K}(2.1)^{J}_{F}$	F K	F K	F^{S}_{K}	$^{K}(2.3)^{D}_{F}$	$^{K}(2.2)^{D}_{S}$	$^{K}(2.3)^{D}_{F}$	2.5^{K}	2.5^{K}	2.3^{K}	2.4^{K}	2.5^{K}	2.3^{K}	2.5	2.5	2.5	2.3	2.5	2.5	2.2	2.1	2.0	2.1
28	22	2.2^{F}_{S}	2.2	2.3^{F}	2.2	2.2	2.2	$(2.2)^{J}_{S}$	2.5	2.5	2.5	2.6	2.5	2.3	2.5	2.6	2.6	2.6	2.4^{F}_{S}	2.2	$(2.2)^{J}_{S}$	A S	$(2.0)^{J}_{S}$	$(1.9)^{S}$
29	S	$(2.1)^{S}$	2.1^{F}_{S}	$(2.4)^{F}_{S}$	2.4^{S}	2.3^{F}	2.2	2.2	2.5	2.5	2.5	2.5	2.4	2.6	2.4	2.4	2.5	2.7	2.3	2.2^{F}	2.2^{F}	2.4^{F}	$(2.1)^{D}_{F}$	F
30	F	F	$(2.0)^{J}_{F}$	$(2.3)^{F}$	$(2.2)^{J}_{F}$	$(2.5)^{D}_{S}$	$(2.3)^{F}_{S}$	2.3^{F}_{S}	2.6	2.5	2.5	2.5	2.5	2.3	2.4	2.4	2.5	2.4^{F}	2.4^{F}_{S}	2.5	S	S F	S A	S A
31	$(1.9)^{J}_{S}$	$(2.0)^{F}_{S}$	$(2.1)^{J}_{F}$	F^{S}	2.1^{F}	$(2.2)^{J}_{F}$	$(2.1)^{D}_{F}$	2.3^{F}_{S}	2.5	2.6	$(2.4)^{J}_{S}$	2.5	2.4^{S}	2.5	2.4	2.6	2.4	24	$(2.2)^{J}_{S}$	22	$(2.2)^{D}_{S}$	$(2.2)^{D}_{S}$	$(2.3)^{F}_{S}$	$(2.2)^{J}_{F}$
Median	(2.1)	(2.1)	2.1	2.2	2.2	2.3	2.3	2.3	2.5	2.5	2.5	2.4	2.4	2.4	2.4	2.5	2.5	2.4	2.3	2.4	2.2	2.2	20	2.1
Count	27	29	28	27	29	31	31	31	31	30	30	30	30	30	30	31	31	31	30	31	27	22	24	26

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

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TABLE 58

Central Radio Propogation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

(M3000)F2 (Characteristic), ____ (Unit), December (Month), 1953

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Lat. 38.7°N, Long. 77.1°W

75°W Mean Time

Scaled by: Mc C. E.J.W., J.W.P.

Calculated by: Mc C. E.J.W., J.W.P.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	3.1	3.3	3.2	3.2	3.2	3.4	(3.4)$^{J}_{S}$	3.5	3.8	3.7	(3.7)$^{D}_{S}$	3.3	3.3	3.5	3.6	3.7	3.7	(3.5)$^{D}_{S}$	3.4	3.4	3.4	3.4	3.0	3.2^{F}
2	3.1	3.3^{F}	3.4^{F}	3.2^{F}	(3.3)$^{F}_{D}$	3.4^{F}	3.4^{F}	3.4	3.3	(3.2)^{M}	3.8	3.5	3.5	3.5^{M}	3.6	3.6	(3.6)$^{J}_{S}$	3.6	(3.4)^{F}	(3.4)^{F}	(3.5)$^{F}_{S}$	3.2^{F}	(3.0)$^{F}_{S}$	3.0$^{F}_{S}$
3	(3.1)$^{F}_{S}$	(3.2)$^{F}_{S}$	3.1^{F}	3.2^{F}	3.4	3.4^{F}	3.2	3.5	3.5^{V}	(3.5)$^{D}_{S}$	3.7	3.4	3.5	3.7	5	3.4^{F}	3.5$^{F}_{S}$	(3.7)$^{F}_{S}$	3.4$^{F}_{S}$	3.3$^{F}_{S}$	3.3^{F}	3.5^{F}	3.2$^{F}_{S}$	3.2$^{F}_{S}$
4	3.2$^{F}_{S}$	3.3$^{F}_{S}$	3.4$^{F}_{S}$	3.3$^{F}_{S}$	3.3	3.4$^{F}_{S}$	3.4$^{F}_{S}$	(3.4)$^{F}_{N}$	(3.6)^{S}	(3.6)$^{J}_{H}$	3.9^{S}	(3.3)$^{F}_{N}$	3.5	3.4	3.4	3.4	3.5^{S}	3.6	3.4	3.4^{S}	3.2^{F}	3.2^{F}	3.2	3.2^{F}
5	3.2	3.1^{F}	3.3	3.1^{F}	3.2	3.3	3.2	3.4	3.8	3.7	3.7	3.4	3.7	3.6	3.7	3.5	3.6	3.5	3.1	3.6	3.2	3.0	(3.0)$^{J}_{S}$	(3.0)$^{J}_{S}$
6	(3.1)$^{J}_{S}$	(3.1)$^{D}_{S}$	3.3	3.3	3.5^{F}	3.4	3.4^{S}	3.4	3.7	3.7	3.6	3.5	3.2	3.3^{H}	3.5	3.5	3.6	3.5	3.2	3.5	(3.4)^{A}	3.1	3.0	3.1
7	3.3$^{F}_{S}$	(3.2)$^{D}_{S}$	F	F	3.4	3.4	3.2	3.4	3.6	3.6^{H}	3.4^{H}	(3.4)^{S}	3.4	3.4	3.6	3.6	3.7	3.5	3.2	3.3	A	A	(3.0)^{S}	(3.1)^{F}
8	(3.2)^{F}	(3.2)^{F}	(3.2)$^{J}_{F}$	3.1^{F}	(3.3)^{F}	(3.0)^{F}	(3.3)^{F}	(3.4)$^{J}_{S}$	(3.3)^{S}	3.6	3.8	C	3.4	3.3^{H}	3.4	3.5	3.5	3.4	(3.1)^{A}	(3.3)^{S}	(3.5)$^{J}_{S}$	(3.1)$^{J}_{F}$	3.1	(3.0)^{F}
9	(2.9)$^{D}_{F}$	(3.1)^{F}	3.3	3.3$^{F}_{S}$	3.3^{F}	3.4^{F}	3.0^{F}	3.3	(3.6)^{A}	A	A	3.5	3.6	3.5	3.5	3.5	3.6	3.6	3.5	3.3	3.5	(3.5)$^{F}_{S}$	3.0^{F}	(2.9)^{F}
10	(3.1)$^{J}_{S}$	(3.0)^{F}	3.2^{F}	3.2^{F}	3.3^{F}	3.3^{F}	3.5	3.4	3.6	(3.6)$^{F}_{S}$	3.7	3.6	(3.2)$^{F}_{S}$	3.5	3.5	(3.5)$^{D}_{S}$	3.7	3.5^{S}	3.2^{S}	3.5$^{F}_{S}$	(3.3)$^{F}_{S}$	A	F^{A}	F^{A}
11	(3.2)^{F}	(3.0)$^{D}_{F}$	(3.1)$^{D}_{F}$	3.2^{S}	(3.2)$^{J}_{F}$	3.3^{F}	3.2	3.4	3.5	3.5	2.9^{H}	3.1	3.5	3.5	3.2	3.5	3.2	3.3	3.4	3.2	3.1	3.5	2.9	2.9
12	3.0	3.1^{F}	3.2	3.1	3.0^{F}	3.0^{F}	2.9	3.3	3.4	3.5	3.5	3.2	3.3	3.6	3.4	3.4	3.5	3.4	3.3	3.2	3.0	3.3	3.1	(3.1)^{S}
13	A	(3.2)$^{A}_{F}$	(3.2)$^{J}_{F}$	(3.0)^{F}	3.0	3.0	3.0	3.3	3.5	3.6	3.5	3.3	3.3	3.5	3.2	3.4	3.5	3.5	A	(3.5)^{A}	A	A	A	(3.2)^{A}
14	3.1	(2.9)$^{F}_{H}$	(3.1)^{F}	(3.4)^{A}	A	(3.5)^{A}	(3.4)^{F}	(3.4)$^{J}_{F}$	(3.6)$^{J}_{S}$	3.6^{S}	3.6^{F}	(3.6)$^{D}_{F}$	(3.5)$^{F}_{S}$	3.7	3.5	3.7	3.6	3.6	3.5^{F}	(3.3)$^{D}_{S}$	(3.4)$^{F}_{F}$	(3.5)$^{D}_{F}$	F	F
15	(3.2)$^{D}_{F}$	(3.1)$^{D}_{F}$	F^{A}	F^{A}	(3.3)$^{J}_{S}$	(3.4)$^{J}_{F}$	(3.5)^{F}	3.5	3.5	3.5	3.6	3.5	(3.1)$^{J}_{H}$	3.5	3.0	3.6	3.7	3.3	3.3	3.3	(3.2)$^{J}_{S}$	(3.1)^{S}	3.1	(3.0)$^{J}_{F}$
16	(3.0)$^{J}_{F}$	(2.9)^{F}	(3.0)$^{J}_{F}$	(3.0)$^{D}_{S}$	(3.1)$^{D}_{F}$	(3.2)^{F}	(3.5)$^{J}_{F}$	(3.2)$^{J}_{F}$	3.6	3.6	3.6	3.4	(3.5)$^{J}_{S}$	3.4	3.6	3.6	(3.7)$^{J}_{S}$	3.6^{F}	3.5^{S}	3.2^{F}	(3.2)$^{D}_{A}$	A	A	A
17	A	A	3.0	3.1	3.2^{F}	3.4^{F}	(3.4)$^{D}_{F}$	(3.6)$^{D}_{S}$	3.7	(3.7)^{D}	3.9	3.3	3.3	3.5^{M}	3.5	3.6	3.6	3.6	3.5	(3.3)^{S}	(3.3)^{S}	3.3^{F}	3.2^{F}	3.1^{F}
18	(3.1)$^{D}_{A}$	3.1	(3.1)^{S}	(3.1)$^{J}_{F}$	3.4	3.4	3.4	3.4	(3.5)$^{J}_{S}$	3.6	3.4	3.6	3.4	3.5	3.5^{M}	(3.5)$^{J}_{S}$	3.6	3.3	(3.4)$^{J}_{S}$	3.5^{S}	(3.3)^{S}	A^{S}	A	(3.1)$^{D}_{S}$
19	(3.2)$^{D}_{S}$	(3.1)$^{J}_{S}$	(3.0)$^{D}_{F}$	3.2	3.2	3.5	3.3	(3.4)$^{J}_{S}$	3.7	(4.0)$^{D}_{S}$	(3.5)^{M}	(3.5)$^{D}_{S}$	3.7	3.7	3.5	3.6	3.5	3.5	(3.4)$^{J}_{S}$	3.4	3.4	(3.4)$^{D}_{A}$	2.9	3.1
20	(3.1)$^{J}_{S}$	3.3^{S}	3.2	3.2	3.3	3.4	3.3	3.4	3.8	3.5	3.6	3.4	3.4^{Z}	3.4^{V}	3.6	3.8	3.4^{M}	3.5	3.3	(3.4)$^{D}_{A}$	(3.2)^{S}	S	(3.0)$^{J}_{S}$	2.9
21	3.0	3.0	3.2	3.2^{S}	3.3	3.3	3.5	3.3	3.7	3.7	3.7	3.7	C	C	3.6	3.4	3.5	3.6	3.5	3.5	3.5	3.6	3.2	3.2
22	3.2	(3.0)^{S}	3.1	3.0	3.2	(3.3)^{S}	3.7	3.2	3.6	3.5	(3.4)$^{D}_{S}$	(3.0)^{M}	3.5	3.3	3.5	3.5	3.5	3.6	3.4	3.5	3.6$^{F}_{S}$	(3.1)$^{J}_{S}$	(3.2)$^{J}_{S}$	(3.2)$^{J}_{S}$
23	3.0$^{F}_{S}$	3.0	3.1^{S}	3.3	(3.2)$^{D}_{S}$	(3.7)$^{J}_{S}$	3.4	3.5	(3.4)$^{D}_{A}$	3.6	3.6	3.3	3.5	3.6	3.5$^{F}_{S}$	3.5	3.7	3.4	3.5	3.5	3.5$^{F}_{S}$	3.0	(3.0)$^{F}_{A}$	(3.1)$^{D}_{F}$
24	(3.2)$^{D}_{F}$	(3.1)$^{D}_{F}$	(3.1)$^{D}_{F}$	(3.3)$^{D}_{F}$	(3.4)$^{D}_{S}$	3.3^{F}	(3.5)$^{D}_{F}$	3.6	3.5	3.6	3.5	3.5	3.5	3.6	3.6	3.4	3.6	3.5	3.6	3.5	S	S	S	3.0
25	3.1^{F}	3.1^{F}	(3.1)$^{F}_{D}$	(3.0)$^{J}_{F}$	(3.3)$^{J}_{S}$	(3.4)$^{D}_{S}$	(3.4)$^{D}_{F}$	3.3	3.5	3.5	3.5	3.6	3.6^{F}	3.4	3.5	3.5	3.6	3.5	3.3	3.4^{S}	3.3	3.2	3.3^{F}	3.0^{F}
26	3.1	3.0	3.1$^{F}_{S}$	(3.0)$^{J}_{F}$	(3.4)$^{F}_{S}$	(3.3)$^{D}_{S}$	3.5$^{F}_{S}$	(3.3)$^{J}_{F}$	3.7	3.6	3.4	3.6	3.5	3.6	3.5	3.4	3.7	3.6	3.3	3.4	(3.4)$^{F}_{S}$	(3.0)$^{D}_{S}$	(3.1)$^{J}_{F}$	(3.0)$^{J}_{F}$
27	^{K}(3.1)$^{J}_{F}$	^{K}(3.1)$^{J}_{F}$	F^{K}	F^{K}	F$^{K}_{S}$	^{K}(3.4)$^{D}_{F}$	^{K}(3.2)$^{D}_{F}$	^{K}(3.3)$^{D}_{F}$	3.6^{K}	3.5^{K}	3.4^{K}	3.5^{K}	3.5^{K}	3.3^{K}	3.6	3.6	3.6	3.3	3.6	3.6	3.3	3.1	3.0	3.1
28	3.3	3.3$^{F}_{S}$	3.2	3.3^{F}	3.2	3.3	3.2	(3.2)$^{J}_{S}$	3.8	3.6	3.6	3.7	3.6	3.4	3.6	3.7	3.7	3.7	3.5$^{F}_{S}$	3.2	(3.2)$^{J}_{S}$	A^{S}	(3.1)$^{J}_{S}$	(2.9)^{S}
29	S	(3.1)^{S}	3.2$^{F}_{S}$	(3.4)$^{F}_{S}$	3.5^{S}	3.3^{F}	3.3	3.2	3.6	3.6	3.6	3.5	3.5	3.6	3.5	3.5	3.6	3.8	3.3	3.3^{F}	3.2^{F}	3.5^{F}	(3.1)$^{D}_{F}$	F
30	F	F	(3.1)$^{J}_{F}$	(3.3)^{F}	(3.2)$^{J}_{F}$	(3.6)$^{D}_{S}$	(3.4)$^{F}_{S}$	3.3$^{F}_{S}$	3.7	3.6	3.5	3.6	3.6	3.4	3.5	3.4	3.6	3.5^{F}	3.5$^{F}_{S}$	3.5	S	S^{F}	S^{A}	S^{A}
31	(2.9)$^{J}_{S}$	(3.0)$^{F}_{S}$	(3.1)$^{J}_{F}$	F^{S}	3.1^{F}	(3.2)$^{J}_{F}$	(3.1)$^{D}_{F}$	3.4$^{F}_{S}$	3.6	3.7	(3.5)$^{J}_{S}$	3.6	3.5^{S}	3.6	3.5	3.7	3.5	3.5	(3.3)$^{J}_{S}$	3.2	(3.3)$^{D}_{S}$	(3.2)$^{D}_{S}$	(3.3)$^{F}_{S}$	(3.2)$^{F}_{S}$
Median	(3.1)	(3.1)	3.2	3.2	3.3	3.4	3.4	3.4	3.6	3.6	3.6	3.5	3.5	3.5	3.5	3.5	3.6	3.5	3.4	3.4	3.3	3.2	3.1	3.1
Co..nt	27	29	28	27	29	31	31	31	31	30	30	30	30	30	30	31	31	31	30	31	27	22	24	26

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

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U. S. GOVERNMENT PRINTING OFFICE: 1946 O - 703519

Form adopted June 1946

TABLE 59

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D. C.

IONOSPHERIC DATA

(M3000)F1 (Characteristic), ____ (Unit), December (Month), 1953

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75° W Mean Time

Scaled by: E.J. Mc C. E.J.W., J.W.P.

Calculated by: E.J.McC.E.J.W., J.W.P.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										Q	(4.1)L	(4.0)P	L	3.7 H	(3.9)L	L								
2										L	L	L	L	L	L	L	L							
3										L	L	L	L	L	L	3.9								
4										L	L	L	L	L	L	Q								
5										A	L	(4.0)L	L	L	L	L								
6										L	L	L	L	L	(3.9)L	L								
7										Q	Q	L	L	A	L	3.8								
8										Q	A	C	3.8	L	L	L								
9										A	A	A	A	A	A	A								
10										L	L	L	L	L	L	Q								
11										L	3.6 H	L	3.8	3.8	L	L	L							
12										L	L	3.8	3.2 H	4.0	L	L								
13									L	L	A	A	L	3.7	L	L								
14										L	L	L	(3.8)L	(3.7)L	L	L								
15										L	L	3.9	L	L	L	L								
16										Q	L	(3.9)L	3.8	(3.7)L	3.9	L								
17										4.2	L	L	L	L	L	L								
18										L	L	L	L	L	L	L								
19										L	L	L	L	L	L	L								
20										L	L	3.9	3.9	L	L	L	L							
21										Q	Q	L	C	C	L	L	L							
22										Q	L	L	(3.7)L	L	L	L								
23										L	L	(3.8)L	(3.8)L	(3.9)L	L	L								
24										Q	L	3.8	(3.9)H	3.9	4.0	L								
25										Q	L	(3.7)L	(3.9)L	4.1	L	L								
26										L	3.7	L	(3.8)L	L	L	L								
27										Q K	(3.8)L K	(3.8)H K	L K	L K	L	L	L							
28									L	L	L	L	L	L	L	L								
29										L	L	3.8 H	3.9	(4.0)H	L	L								
30										Q	L	3.8	L	L	L	L								
31										L	3.8	3.9	4.0 H	L	L	L	L							
Median									—	—	3.8	3.8	3.8	3.9	—	—	—							
Count									—	1	5	13	13	11	4	2	—							

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE 1946 O 761219

Form accepted June 1946

TABLE 60

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

IONOSPHERIC DATA

(M1500)E (Characteristic), ____ (Unit), December (Month), 1953

Observed at Washington, D.C.

Lat. 38.7°N, Long. 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: F.J. Mc C, E.J.W., J.W.P.

Calculated by: F.J. Mc C, E.J.W., J.W.P.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									A	A	4.3 F	A	4.3	4.0 H	4.3	(4.4) S	4.0 H S							
2									(4.0) H	4.0	A	4.2	4.2	(4.3) P	4.3	A	4.2							
3									A	A	A	4.3	4.3	A	4.2 P	A	A							
4									(4.0) F	4.3	4.3	A	4.3	(4.2) A	(4.3) A	(4.3) A	A							
5									A	A	(4.2) A	(4.2) A	4.2	4.2 H	4.0 H	4.2	S							
6									4.0	4.1	4.2 H	4.3	4.3 H	4.2	4.1 H	(4.3) A	A							
7									(4.0) H	4.3	4.3	4.4	4.5	A	A	A	A							
8									3.9	4.3	A	C	A	A	4.1	3.9	A							
9									A	4.2 H	A	4.3	4.2	4.3	4.3	A	A							
10									A	A	A	A	(4.2) A	(4.2) A	A	(4.1) A	A							
11									(4.0) P	4.2	4.3	A	4.2	4.1	4.3	4.1	A							
12									A	A	(4.1) P	4.3	A	4.2	4.3	A	4.2 F							
13									A	4.1	A	A	A	A	A	A	A							
14									A	(4.1) A	(4.2) A	A	A	(4.2) A	(4.3) A	A	A							
15									A	A	A	A	A	A	4.2	4.1	A							
16									A	A	A	A	A	(4.3) P	(4.5) A	A	A							
17									S	4.1 H	A	(4.1) F	(4.1) P	4.4	(4.1) F	(4.3) H	4.2 H							
18									S	4.2	(4.1) S	A	A	A	(4.5) A	A	A							
19									(4.4) P	(4.3) P	(4.3) A	A	A	(4.3) A	4.4	4.4	A							
20									S	4.1 H	(4.4) A	4.3	4.3	4.4	4.4 H	4.4	(4.0) H							
21									S	4.3	A	4.2	C	C	4.3	(4.0) H	A							
22									4.1 H	4.1 H	4.2 H	A	(4.2) A	4.3	4.4	4.4 H	4.0							
23									A	(4.4) A	A	A	4.4	A	4.3	4.3	A							
24									A	(4.1) A	(4.4) A	A	A	(4.4) H	4.4	(4.3) A	A							
25									S	(4.1) A	A	4.1	4.2	4.3 H	4.4	4.2 H	4.0 H							
26									S	(4.5) F	4.3	4.3	4.3	4.4	4.4 H	4.3 H	4.1 H							
27									S K	4.3 H K	A K	A K	4.3 H K	(4.3) P K	(4.3) P	4.3	4.4							
28									S	C	4.3	4.4	4.3	A	A	4.3	A							
29									A	4.0	4.3	4.3	(4.4) A	A	(4.3) A	4.1 H	(4.4) P							
30									(4.3) S	4.3	4.4	4.3	A	A	A	A	A							
31									A	4.3	4.4	(4.4) A	(4.5) P	4.5	(4.4) A	A	A							
Median									(4.0)	4.2	4.3	4.3	4.3	4.3	4.3	4.3	4.2							
Count									9	23	18	16	20	20	26	20	10							

Sweep 1.0 Mc to 25.0 Mc In 0.25 min

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U.S. GOVERNMENT PRINTING OFFICE 1946 O 702318

Table 61

Ionospheric Storminess at Washington, D. C.

December 1953

Day	Ionospheric character* 00-12 GCT	12-24 GCT	Principal storms Beginning GCT	End GCT	Geomagnetic character** 00-12 GCT	12-24 GCT
1	2	1			1	1
2	1	2			2	1
3	1	1			2	2
4	2	1			2	2
5	1	2			2	1
6	3	2			1	2
7	2	2			2	1
8	1	2			2	2
9	0	1			1	2
10	2	2			1	2
11	2	3			3	4
12	2	2			4	3
13	1	3			2	3
14	3	2			2	2
15	2	2			1	2
16	3	2			2	2
17	3	3			1	2
18	2	2			2	1
19	3	2			1	2
20	1	1			1	2
21	2	2			1	1
22	1	1			2	2
23	2	2			0	2
24	2	2			2	1
25	2	2			1	2
26	1	1			1	2
27	3	1			1	2
28	0	1			2	2
29	2	1			1	3
30	2	2			1	1
31	3	2			2	1

*Ionosphere character figure (I-figure) for ionospheric storminess at Washington, D. C., during 12-hour period, on an arbitrary scale of 0 to 9, 9 representing the greatest disturbance.

**Average for 12 hours of Cheltenham, Maryland, geomagnetic K-figures on an arbitrary scale of 0 to 9, 9 representing the greatest disturbance.

Table 62

Sudden Ionosphere Disturbances Observed at Washington, D. C.

December 1953

No sudden ionosphere disturbances were observed during the month of December.

Table 63

Sudden Ionosphere Disturbances Reported by the Netherlands Postal and Telecommunication Services, as Observed at Nederhorst den Berg, Netherlands

1953 Day	GCT Beginning	GCT End	Location of transmitters	Other phenomena
October 14	0951	1230	Argentina, Curacao, Egypt, Finland, Japan, Java, Italy, Portugal, Sweden, Switzerland, Surinam, The Netherlands Indies, Washington	Solar flare* 1012
14	1417	1450	Argentina, Curacao, Peru, Surinam, Washington	Solar flare** 1420 Terr.mag.pulse*** 1423-1430

*Time of observation at Wendelstein Observatory, Germany. Flare began before time of observation.

**Time of observation at Sacramento Peak, New Mexico, and at McMath-Hulbert Observatory, Pontiac, Michigan.

***As observed on Cheltenham magnetogram of the United States Coast and Geodetic Survey.

Note: Observers are invited to send to the CRPL information on times of beginning and end of sudden ionosphere disturbances for publication as above. Address letters to the Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D. C.

Table 64a

Radio Propagation Quality Figures
(Including Comparisons with Short-Term and Advance Forecasts)

November 1953

Day	North Atlantic 6-hourly quality figures				Short-term forecasts issued about one hour in advance of:				Whole day quality index	Advance forecasts (J-reports) for whole day; issued in advance by:			Geomagnetic K_{Ch}	
	00 to 06	06 to 12	12 to 18	18 to 24	00	06	12	18		1-4 days	4-7 days	8-25 days	Half day (1)	Half day (2)
1	6	6	7	6	6	6	7	7	6	7	7		2	2
2	7	7	7	6	6	6	7	7	7	7	7		2	1
3	6	6	7	7	7	6	7	7	7	7	7		1	2
4	6	6	7	7	7	6	7	7	7	7	7		2	1
5	6	6	6	6	6	5	6	5	6	7	7		3	1
6	6	5	7	7	5	5	6	6	6	6	7		1	1
7	6	6	7	7	7	6	7	7	7	7	7		2	1
8	7	6	7	6	7	6	6	7	6	7	7		2	2
9	6	6	7	6	6	6	7	7	7	7	7		1	0
10	6	6	7	6	6	6	7	7	7	6	7		0	0
11	6	6	7	6	7	5	6	6	6	6	6		0	2
12	6	7	7	6	6	(4)	6	6	6	(3)	(3)	X	2	3
13	5	5	5	5	(4)	(3)	5	(4)	5	(3)	(3)	X	(5)	(4)
14	(4)	(4)	5	5	(3)	(3)	(4)	5	(4)	(3)	(3)	X	(4)	(4)
15	(4)	(4)	5	(4)	(3)	(3)	5	(4)	(4)	(3)	(3)	X	(4)	(4)
16	(3)	(4)	5	(3)	(4)	(3)	(4)	(4)	(4)	(3)	(3)	X	(4)	(4)
17	(3)	(4)	6	5	(3)	(2)	5	5	(4)	(4)	(4)	X	3	3
18	(4)	(4)	5	5	(3)	(3)	5	(4)	(4)	(4)	5		3	3
19	(4)	(4)	5	(4)	(4)	(3)	5	(4)	(4)	5	5		(4)	(4)
20	(3)	(3)	(4)	(4)	(3)	(2)	5	(3)	(4)	(4)	5		(4)	(4)
21	(4)	(4)	6	(4)	(3)	(3)	(4)	5	(4)	(4)	5		3	2
22	(3)	(4)	6	5	5	(3)	6	5	(4)	5	5		2	1
23	5	5	6	(4)	(4)	(4)	6	5	5	5	6		3	3
24	(4)	(4)	6	5	(4)	(3)	5	5	(4)	5	6		3	2
25	(4)	5	7	6	5	(4)	6	5	5	6	6		3	3
26	5	5	7	5	(4)	(4)	6	5	6	6	6		2	1
27	5	5	6	5	5	5	6	5	5	6	6		3	2
28	5	5	6	6	5	5	6	6	6	6	7		1	1
29	(4)	5	7	6	6	5	6	6	6	6	7		2	0
30	6	6	7	7	6	5	7	7	7	7	7		1	1

Score:

Quiet periods	P	9	11	17	14		12	9		
	S	9	7	11	10		6	9		
	U	0	1	0	0		1	1		
	F	0	1	1	0		1	1		
Disturbed periods	P	4	0	0	2		4	1		
	S	6	9	1	4		6	8		
	U	1	1	0	0		0	0		
	F	1	0	0	0		0	1		

Scales:
Q-scale of Radio Propagation Quality
(1) - useless
(2) - very poor
(3) - poor
(4) - poor to fair
5 - fair
6 - fair to good
7 - good
8 - very good
9 - excellent

K-scale of Geomagnetic Activity
0 to 9, 9 representing the greatest disturbance; $K_{Ch} \geq 4$ indicates significant disturbance, enclosed in ( ) for emphasis

Scoring: (beginning October 1952)
P - Perfect: forecast quality equal to observed
S - Satisfactory: (beginning October 1952) forecast quality one grade different from observed
U - Unsatisfactory: forecast quality two or more grades different from observed when both forecast and observed were ≥ 5, or both ≤ 5
F - Failure: other times when forecast quality two or more grades different from observed

Symbols:
X - probable disturbed date

Note: All times are UT (Universal Time or GCT)

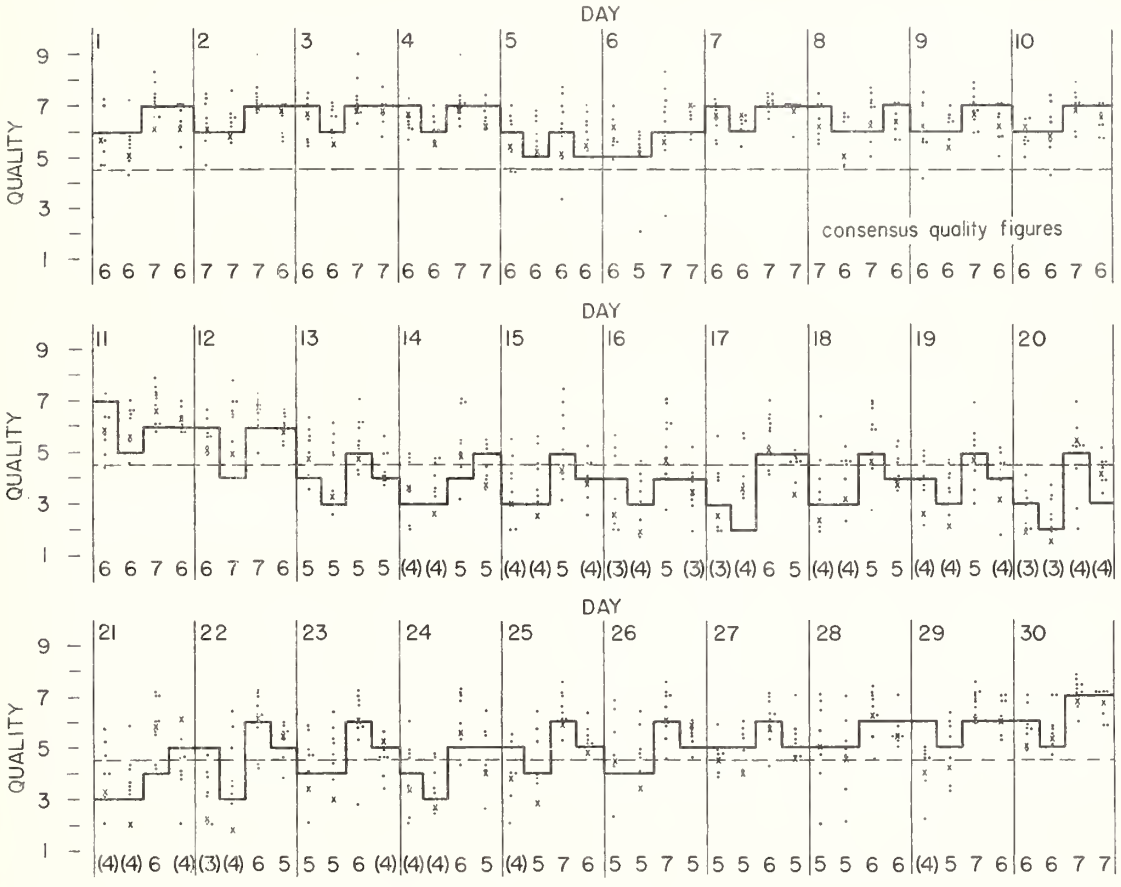
Table 64b

Short-Term Forecasts---November 1953

— forecast

• individual reports of quality (adjusted to CRPL scale)

X CRPL observation (not in consensus)



Outcome of Advance Forecasts (1 to 4 days ahead) --- November 1953

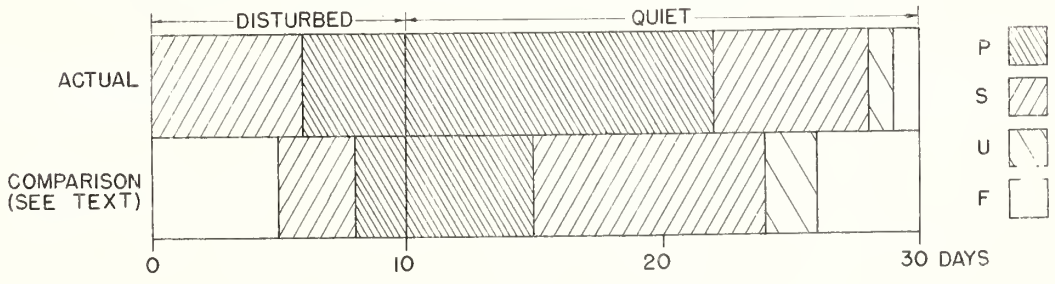


Table 65a

Coronal observations at Climax, Colorado (5303A), east limb

Date GCT	Degrees north of the solar equator 90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0°	Degrees south of the solar equator 5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1953																																				
Dec 1.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11.8	-	-	-	-	-	-	1	2	3	3	1	4	4	2	2	3	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14.8	-	-	-	-	-	-	2	3	3	3	3	3	3	4	4	4	4	3	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17.9a	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X
23.8	-	-	-	-	-	1	2	2	3	2	2	1	1	1	1	1	1	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.7a	-	-	-	-	-	-	-	1	2	2	1	-	-	-	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25.7	-	-	-	-	-	-	-	2	1	1	2	1	-	-	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26.7	-	-	-	-	-	-	1	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 66a

Coronal observations at Climax, Colorado (6374A), east limb

Date GCT	Degrees north of the solar equator 90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0°	Degrees south of the solar equator 5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1953																																				
Dec 1.8a	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	3	1	1	-	-	-	-	-	1	2	2
11.8	2	2	3	3	3	2	1	2	2	2	3	3	8	4	5	8	3	5	7	8	8	6	6	5	3	3	2	1	1	1	1	3	2	3	3	3	4
14.8	2	2	2	3	2	2	1	2	2	2	2	2	2	2	2	2	3	4	4	5	6	6	5	5	6	6	4	4	3	2	2	2	3	3	4	5	4
17.9a	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X
23.8	3	3	2	2	1	1	1	1	1	1	2	2	3	4	5	3	3	4	4	3	3	3	3	3	3	3	3	1	1	1	1	1	1	1	2	3
24.7a	1	1	-	-	-	-	-	-	-	-	-	1	3	4	4	4	5	9	4	7	4	5	4	4	3	3	3	2	1	1	1	1	1	2	2	2	2
25.7	2	2	2	2	1	1	-	-	-	1	1	2	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	3	2	2	2	2	2	2	3	3	4
26.7	2	2	2	1	-	-	-	-	-	1	2	2	2	2	2	2	3	3	4	3	4	3	3	3	3	2	2	1	1	1	1	1	1	2	2	3	3
28.9	1	1	1	1	1	1	-	-	-	1	3	2	3	2	2	2	2	2	3	2	2	3	3	3	2	2	1	1	1	1	1	1	2	2	2	1
30.7	2	1	1	1	1	1	1	1	1	2	2	3	2	3	2	2	3	2	2	3	4	4	4	4	3	3	2	2	1	1	1	1	1	1	2	2
31.7	2	2	2	2	2	1	1	1	1	2	2	2	3	2	1	3	3	3	2	3	3	4	5	5	4	3	3	2	1	1	1	1	1	1	3	3

Table 67a

Coronal observations at Climax, Colorado (6702A), east limb

Date GCT	Degrees north of the solar equator 90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0°	Degrees south of the solar equator 5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1953																																				
Dec 1.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17.9a	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X
23.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 65b

Coronal observations at Climax, Colorado (5303A), west limb

Date GCT	Degrees south of the solar equator																			0°	Degrees north of the solar equator																
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5			5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1953																																					
Dec 1.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	2	1	1	1	1	2	1	-	-	-	-	-	-
11.8	-	-	-	-	-	-	-	1	2	1	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-	1	1	3	1	1	-	-	-	-	-
14.8	-	-	-	-	-	-	-	-	-	-	1	2	1	-	-	-	-	-	1	1	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17.9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
23.8	-	-	-	-	-	-	-	-	-	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-	-
24.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	3	2	3	1	1	1	1	1	-	-	-	-	-	-
26.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	4	3	3	3	2	1	1	1	-	-	-	-	-	-	-	-
28.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3	2	3	1	1	1	-	-	-	-	-	-	-	-	-	-
30.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-
31.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	2	-	-	2	3	-	-	-	-	-	-	-	-

Table 66b

Coronal observations at Climax, Colorado (6374A), west limb

Date GCT	Degrees south of the solar equator																			0°	Degrees north of the solar equator																
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5			5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1953																																					
Dec 1.8a	2	1	1	-	-	-	-	-	-	2	2	2	2	2	2	2	3	4	3	3	2	2	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-
11.8	4	3	2	2	2	2	2	1	1	1	1	3	4	3	4	4	4	4	3	5	5	5	4	4	4	2	2	1	1	1	2	2	2	3	4	4	2
14.8	4	3	2	2	2	2	2	2	2	2	2	2	3	4	5	5	6	6	4	4	2	3	3	3	3	4	4	2	2	2	2	2	2	3	3	2	2
17.9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
23.8	3	2	2	2	2	1	1	1	1	1	2	3	4	4	3	4	6	6	6	6	6	6	6	4	3	2	3	3	2	1	1	1	2	2	2	3	3
24.7a	2	2	2	1	1	1	1	1	1	2	3	3	3	3	3	4	5	3	4	4	3	3	3	1	1	1	2	1	1	-	-	-	-	2	2	2	1
25.7	4	4	3	3	1	2	1	1	1	3	3	3	4	5	6	6	6	5	5	4	4	4	4	1	1	1	1	1	1	1	1	2	2	2	2	3	2
26.7	3	3	2	1	1	1	1	1	1	1	2	2	2	3	4	3	3	2	2	2	2	1	1	1	1	1	1	1	1	1	2	2	2	3	3	2	2
28.9	1	2	2	2	1	1	1	1	1	2	2	2	3	3	3	4	4	5	4	3	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1
30.7	2	2	1	1	1	1	1	1	1	2	2	2	2	2	2	5	4	3	3	3	1	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	2
31.7	3	2	1	2	2	1	1	1	1	3	4	4	3	2	3	4	5	5	5	3	3	3	3	2	2	3	3	2	1	1	1	1	1	1	2	3	2

Table 67b

Coronal observations at Climax, Colorado (6702A), west limb

Date GCT	Degrees south of the solar equator																			0°	Degrees north of the solar equator																
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5			5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1953																																					
Dec 1.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17.9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
23.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 68a

Coronal observations at Sacramento Peak, New Mexico (5303A), east limb

Date	Degrees north of the solar equator																			00	Degrees south of the solar equator																
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5			5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1953																																					
Dec 1.6	-	-	-	-	-	-	2	2	2	3	3	2	3	3	2	2	3	3	3		4	3	3	4	3	2	2	2	2	3	3	2	2	2	-	-	-	-
6.7	-	-	-	-	2	2	2	-	-	-	2	3	3	3	3	2	2	3	3		3	2	2	2	2	-	-	2	2	3	3	2	2	2	-	-	-	-
7.7	-	-	-	-	-	-	-	-	-	-	2	2	3	3	2	3	2	2	-		-	-	-	-	-	2	2	-	-	2	3	2	-	-	-	-	-	-
9.8	-	-	-	-	-	-	-	-	-	-	3	2	2	2	2	3	2	3	3		2	2	-	-	-	2	2	2	3	2	3	-	-	-	-	-	-	-
10.7	-	-	-	-	-	-	2	3	4	5	4	3	3	3	4	3	3	2	2		2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12.8a	-	-	-	-	-	-	2	2	3	4	3	3	4	5	4	4	4	3	4		3	3	2	2	2	2	3	3	2	2	2	-	-	-	-	-	-	-
13.8	-	-	-	-	-	-	2	2	3	3	2	3	2	2	3	4	4	3	2		2	2	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X
14.7	-	-	-	-	-	-	3	4	4	5	4	4	3	5	4	4	4	4	4		3	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15.8	-	-	-	-	-	-	2	2	3	3	3	2	3	3	4	5	4	4	3		2	2	.2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19.7	-	-	-	-	-	-	2	3	3	2	3	3	2	3	2	3	3	3	2		3	3	2	3	3	2	3	2	2	-	-	-	-	-	-	-	-	-
21.7a	-	-	-	-	-	-	-	-	-	2	2	3	2	2	2	3	3	3	2		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23.9a	-	-	-	-	-	-	-	-	-	2	3	2	3	2	3	4	4	3	3		4	3	3	3	3	3	2	-	-	-	-	-	-	-	-	-	-	-
24.9a	-	-	-	-	-	-	-	-	2	2	3	3	2	2	3	2	3	2	2		2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25.7	-	-	-	-	-	2	3	3	3	4	4	3	2	3	3	2	3	2	2		2	-	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27.7a	-	-	-	-	-	-	-	2	3	2	3	3	2	2	3	3	2	2	3		2	3	3	2	3	3	3	2	3	3	2	2	2	2	-	-	-	-
28.7a	-	-	-	-	-	-	-	2	2	2	2	2	3	2	3	3	2	2	2		3	2	2	3	3	3	2	3	2	2	3	-	-	-	-	-	-	-
29.7a	-	-	-	-	-	2	2	3	3	3	2	2	3	2	2	2	2	3	3		3	2	-	-	2	2	3	2	2	-	-	-	-	-	-	-	-	-
30.7a	-	-	-	-	-	-	-	2	2	2	2	2	-	-	2	3	2	2	-		-	-	2	2	2	-	-	2	2	2	3	3	2	-	-	-	-	-
31.7	-	-	-	-	-	2	2	3	2	2	2	-	-	-	2	2	3	3	2		3	2	-	-	2	2	2	-	-	-	-	-	-	-	-	-	-	-

Table 69a

Coronal observations at Sacramento Peak, New Mexico (6374A), east limb

Date	Degrees north of the solar equator																			00	Degrees south of the solar equator																
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5			5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1953																																					
Dec 1.6	3	2	-	2	3	2	2	-	2	3	3	4	3	3	5	3	2	4	3		4	3	4	5	5	4	4	4	2	3	2	2	2	2	3	2	2	2
6.7	3	4	3	4	2	3	3	2	-	-	5	6	4	4	4	8	9	10	10		12	11	10	8	5	5	10	8	5	3	2	-	2	-	-	2	-	-
7.7	3	4	3	2	-	2	-	-	2	2	4	5	2	3	5	5	12	13	11		10	6	5	4	6	8	8	6	5	3	2	-	-	2	2	2	2	3
9.8	3	4	4	5	3	2	3	2	-	2	8	7	5	3	5	5	8	9	10		11	13	12	11	9	8	9	10	4	2	-	2	2	2	-	-	-	-
10.7	3	3	4	3	2	2	-	-	-	3	3	4	8	6	7	6	7	12	11		11	12	11	8	5	5	5	4	3	3	2	2	3	2	3	3	3	3
12.8a	2	3	2	-	2	2	-	-	-	-	2	3	4	2	3	3	3	3	2		3	3	5	4	5	4	3	4	3	2	2	-	-	-	-	-	2	2
13.8	-	-	2	3	3	2	-	-	-	2	2	-	2	2	2	-	-	-	-		2	4	4	3	-	-	2	3	3	2	3	4	3	X	X	X	X	X
14.7	2	3	-	3	2	2	2	2	2	-	2	-	3	3	4	4	3	3	8		8	11	10	5	4	4	5	4	5	4	4	-	-	-	-	-	-	-
15.8	3	4	3	2	2	3	2	-	-	3	3	3	3	4	2	3	4	3	7		8	8	10	9	5	6	7	6	5	3	3	2	2	2	3	3	4	3
19.7	3	3	3	2	3	2	3	2	-	2	5	6	5	6	4	4	3	4	7		8	6	5	5	3	3	5	4	3	3	2	-	-	-	-	-	-	-
21.7a	3	2	2	2	3	2	-	2	-	2	2	3	5	4	5	4	5	5	5		5	6	5	4	4	3	3	2	3	-	-	-	-	-	-	-	-	-
23.9a	-	-	-	-	-	-	-	-	-	-	3	3	4	4	3	3	3	2	2		2	3	4	4	3	4	3	-	-	-	-	-	-	-	-	-	-	-
24.9a	-	2	3	2	-	-	-	-	-	-	2	3	3	2	2	3	3	3	3		4	4	3	2	3	2	2	2	2	-	-	2	2	2	-	-	-	-
25.7	2	3	4	3	2	2	-	2	-	-	3	3	5	5	4	5	5	5	8		7	5	5	5	3	4	4	4	3	2	2	2	2	2	-	-	-	2
27.7a	2	3	3	3	3	2	-	-	-	2	2	3	4	4	5	4	3	3	3		4	5	6	7	6	5	4	3	3	2	2	-	-	-	-	-	-	-
28.7a	-	-	2	-	2	2	-	-	-	2	3	4	4	3	3	2	3	3	2		4	3	4	5	4	4	4	3	-	2	2	2	3	-	-	2	2	2
29.7a	3	2	2	2	3	2	-	-	2	3	3	3	4	4	4	2	3	4	5		5	5	6	4	5	5	4	3	2	-	2	-	2	2	3	2	-	2
30.7a	2	2	3	3	2	2	-	-	2	2	3	3	3	3	-	3	3	3	2		5	4	5	5	4	3	2	2	2	-	2	-	-	3	2	-	2	-
31.7	3	2	2	2	2	3	2	2	3	3	3	4	4	4	4	5	5	5	4		3	3	7	8	7	5	4	2	3	2	-	2	2	2	2	-	3	2

Table 70a

Coronal observations at Sacramento Peak, New Mexico (6702A), east limb

Date	Degrees north of the solar equator																			00	Degrees south of the solar equator																
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5			5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1953																																					
Dec 1.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X
14.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 68b

Coronal observations at Sacramento Peak, New Mexico (5303A), west limb

Date GCT	Degrees south of the solar equator 90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0°	Degrees north of the solar equator 5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1953																																				
Dec 1.6	-	-	-	-	-	2	2	3	2	2	3	3	2	3	3	3	3	4	2	3	4	6	7	6	5	5	4	3	4	4	4	3	2	2	2	-	-
6.7	-	-	-	-	-	-	-	-	2	2	3	4	3	3	2	3	3	2	2	3	3	4	5	7	6	6	5	4	3	5	4	2	-	-	-	-	-
7.7	-	-	-	-	-	-	-	-	-	-	3	2	2	2	2	3	4	5	4	4	3	3	2	3	2	2	3	2	3	4	3	2	-	-	-	-	-
9.8a	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2	2	3	3	2	-	-	-	-	-	-
10.7	-	-	-	-	-	-	-	-	2	3	3	2	3	3	3	3	3	4	4	10	13	5	4	3	3	3	4	4	3	3	3	2	2	-	-	-	-
12.8a	-	-	-	-	-	-	-	-	2	2	2	3	3	2	2	2	2	2	2	3	3	2	2	3	2	2	2	2	3	2	3	2	-	-	-	-	-
13.8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	3	3	2	2	-	2	-	3	2	4	3	2	2	2	-	-	-	-
14.7	-	-	-	-	-	-	2	3	3	2	2	2	3	3	2	3	2	2	2	3	3	3	3	2	2	-	-	-	2	2	2	-	-	-	-	-	-
15.8	-	-	-	-	-	-	-	2	3	3	2	3	2	2	-	-	-	2	2	3	3	2	3	3	2	2	2	2	3	3	2	2	-	-	-	-	-
19.7a	-	-	-	-	-	-	2	3	3	3	3	2	3	2	2	3	2	2	2	3	3	3	2	2	2	3	2	2	2	-	-	-	-	-	-	-	-
21.7a	-	-	-	3	3	3	2	3	3	3	3	3	3	3	2	3	3	2	3	4	4	4	4	3	2	2	3	3	3	3	2	-	-	-	-	-	-
23.9a	-	-	-	-	-	-	-	-	-	-	-	2	3	3	2	3	3	3	3	2	2	2	2	3	3	3	3	3	3	3	2	2	-	-	-	-	-
24.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	2	2	2	2	-	2	2	3	3	3	3	2	3	2	2	2	-	-	-	-	-	-
25.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	4	5	5	5	6	5	5	3	3	3	2	2	-	-	-	-
27.7a	-	-	-	-	-	-	-	-	2	2	3	3	2	2	3	3	3	2	2	3	3	2	3	5	4	3	3	2	3	2	2	3	2	-	-	-	-
28.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	3	2	3	3	3	3	2	3	4	3	2	-	-	-	-	-
29.7a	-	-	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-	-	-	2	3	2	2	3	4	3	3	3	2	2	-	-	-	-	-	-
30.7a	-	-	-	-	-	-	-	-	-	2	2	2	2	3	3	2	3	3	2	2	3	2	2	4	5	4	3	3	3	3	2	2	-	-	-	-	-
31.7	-	-	-	-	-	2	3	2	2	2	2	2	3	2	3	3	3	3	2	2	3	3	2	3	3	2	2	3	3	3	3	2	2	-	-	-	-

Table 69b

Coronal observations at Sacramento Peak, New Mexico (6374A), west limb

Date GCT	Degrees south of the solar equator 90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0°	Degrees north of the solar equator 5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1953																																				
Dec 1.6	2	2	2	3	2	2	2	-	2	2	3	4	5	5	4	4	4	8	7	5	4	4	2	2	2	-	-	3	2	2	-	-	-	2	3	2	3
6.7	-	3	2	3	2	2	2	-	2	-	3	4	5	6	8	7	12	12	8	7	7	6	4	3	2	3	5	4	3	2	-	2	3	3	2	2	3
7.7	3	2	3	3	2	2	2	2	3	2	3	4	5	5	8	7	5	11	12	11	10	9	9	6	4	3	4	3	2	2	-	-	-	2	3	2	3
9.8a	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	5	4	2	3	2	-	2	-	-	3	3	3
10.7	3	3	3	2	2	2	2	-	2	3	3	3	3	5	7	6	4	5	8	18	16	14	8	5	3	5	3	3	2	2	2	-	-	3	2	3	3
12.8a	2	3	2	3	3	3	-	-	2	-	2	2	3	3	4	3	3	4	2	5	4	5	4	4	2	3	3	3	2	-	-	-	-	-	2	2	2	2
13.8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	5	4	3	2	3	3	3	3	4	2	3	-	-	-	-	-	-	-	-
14.7	-	3	3	4	3	2	-	-	2	3	-	2	4	5	4	5	5	5	8	4	3	4	4	5	5	4	6	5	3	2	3	3	2	3	2	3	2
15.8	3	2	3	2	3	2	-	-	-	2	2	2	5	8	7	5	5	4	6	5	4	3	3	2	3	3	5	4	3	3	3	3	2	2	2	3	3
19.7a	-	2	-	3	2	2	-	2	-	2	3	3	3	5	5	4	3	5	6	5	7	6	6	4	3	3	2	2	3	2	-	-	2	2	2	2	3
21.7a	-	2	2	2	3	2	-	2	2	-	2	3	5	4	3	3	4	5	5	5	5	5	6	6	5	3	3	2	-	2	2	2	-	-	-	2	3
23.9a	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	2	3	2	3	2	2	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.9a	-	-	-	-	-	-	-	-	-	-	-	2	2	2	-	3	3	2	3	3	3	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
25.7	2	2	2	2	2	2	2	-	2	3	5	6	4	4	5	6	5	6	5	5	3	4	4	5	3	3	2	-	3	3	2	2	-	-	2	2	2
27.7a	-	2	2	2	2	-	2	-	-	-	3	2	3	4	5	4	4	5	4	2	2	2	3	2	-	2	-	-	2	2	-	2	2	-	2	2	2
28.7a	2	-	2	2	2	-	-	2	2	-	2	2	3	3	3	4	4	4	3	3	-	2	3	2	2	2	-	2	2	-	-	-	-	-	-	-	-
29.7a	2	-	3	2	2	-	-	-	2	2	2	3	3	4	4	4	5	6	6	5	3	3	2	3	2	3	2	2	2	3	3	2	2	2	3	-	3
30.7a	-	-	2	2	2	-	-	2	3	2	2	3	3	2	2	4	4	4	4	3	2	2	-	-	2	3	3	3	2	2	-	2	2	2	-	-	2
31.7	2	2	2	2	2	2	2	-	-	2	2	3	3	3	3	3	5	6	7	5	5	4	3	2	2	3	3	4	4	2	2	2	2	2	-	2	3	3

Table 70b

Coronal observations at Sacramento Peak, New Mexico (6702A), west limb

Date GCT	Degrees south of the solar equator 90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0°	Degrees north of the solar equator 5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1953																																				
Dec 1.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.8a	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-
10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13.8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27.7a	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	-	-	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 71

Particulars of Observations, Climax, Colorado
July - December 1953

Date GCT	Green line threshold intensity at 45°	90°	135°	225°	270°	315°	Obs.	Meas.
1953								
Jul. 1.6	11	12	12	12	13	14	D	B
2.7	11	11	11	12	12	12	H	B
3.6	10	9	10	10	9	8	D	B
6.7	11	11	11	12	12	11	D	B
7.7	12	12	11	13	13	12	H	B
8.7	15	>15	>15	>15	>15	>15	D	B
12.6	3	4	4	4	4	3	H	B
13.6	5	5	5	7	5	5	D	B
14.6	9	8	9	9	9	8	D	B
15.7	6	6	8	7	7	7	D	B
19.8	9	10	11	11	13	11	D	B
20.8	10	10	11	10	10	10	D	B
21.7	11	11	11	12	11	11	D	B
22.8	11	10	12	13	13	12	D	B
23.8	8	8	9	-	9	8	D	B
24.7	7	8	7	7	8	7	D	B
25.6	11	12	11	12	11	12	D	B
26.7	9	9	9	9	8	8	D	B
27.7	8	8	9	8	9	9	D	B
28.6	9	9	9	9	9	8	D	B
29.6	-	8	8	-	-	-	D	B
Aug. 3.6	7	9	8	11	8	11	D/W	B
4.8	15	9	9	11	11	11	D	B
5.7	9	9	10	10	9	9	D	B
6.7	9	10	9	9	9	9	D	B
7.7	8	8	8	10	9	9	H	B
8.7	-	11	7	-	-	-	H	B
11.0	-	9	11	-	-	-	H	B
11.7	10	11	10	11	11	11	W	B
12.8	6	7	5	5	4	4	H	B
13.7	5	5	6	5	5	5	W	B
16.0	8	4	5	-	8	-	H	B
16.7	6	6	7	6	7	6	W/H	B
17.7	8	7	7	8	8	8	W/H	B
18.8	8	8	10	8	10	8	H	B
19.7	10	10	10	-	10	9	W	B
20.7	10	11	9	10	10	9	H	B
21.7	13	13	13	14	14	15	H	B
23.9	11	13	13	12	13	13	H	B
24.7	11	11	10	13	12	12	H	B
25.7	14	14	13	13	13	13	W	B
26.8	-	11	-	-	-	-	H	B
28.7	-	13	-	-	-	-	H	B
30.0	8	9	8	-	8	-	H	B
30.7	4	5	5	2	2	1	H	B
31.7	4	4	5	4	4	5	W	B
Sep. 1.7	5	6	5	-	5	6	H	B
2.7	6	6	6	6	5	5	H	B
3.7	13	9	9	11	11	11	H	B
4.8	9	8	9	12	9	9	W	B
5.7	9	9	9	7	7	6	W	B
6.7	8	8	7	8	7	7	W	B
8.8	10	9	8	6	5	5	H	B
9.7	-	7	-	-	-	-	H	B
10.8	5	6	6	5	4	4	H/W	B
11.6	5	5	4	5	6	5	H	B
12.6	7	7	7	7	7	6	W	B
13.7	9	10	10	-	10	10	H	B
14.6	8	8	8	8	8	8	W	B
15.7	-	7	7	-	8	11	H	B
16.7	8	9	7	9	8	8	H	B
17.7	-	11	11	-	11	11	H	B
Date GCT	Green line threshold intensity at 45°	90°	135°	225°	270°	315°	Obs.	Meas.
1953								
Sep. 18.8	10	10	10	11	11	11	W	B
19.6	5	5	5	5	4	4	H	B
20.7	8	9	9	7	7	6	W	B
21.7	7	9	10	7	6	6	H	B
22.8	10	14	13	-	-	-	W	B
23.7	12	13	14	12	12	11	H	B
24.7	8	9	9	8	8	8	W	B
25.6	3	3	3	4	4	5	H	B
26.7	4	4	4	5	6	6	W	B
27.7	5	4	5	6	5	6	H	B
28.7	7	7	7	9	9	9	W	B
29.6	4	4	4	5	4	4	H	B
30.7	6	6	6	7	7	7	W	B
Oct. 4.6	3	3	3	3	3	3	W	B
5.6	8	8	7	5	-	4	H	B
6.7	5	5	5	5	5	6	W	B
7.7	9	9	8	10	9	9	H	B
8.7	7	7	7	7	8	7	W	B
9.7	6	7	6	7	8	7	H	B
10.6	10	10	8	9	8	10	W	B
11.7	10	9	9	10	9	9	H	B
15.7	-	4	4	5	5	4	H	B
16.6	6	6	7	5	9	6	W	B
17.8	-	8	-	-	-	-	H	B
18.6	7	6	7	8	8	8	W	B
20.8	6	5	5	-	6	-	W	B
22.8	6	7	7	-	9	10	H	B
23.8	-	6	11	-	-	-	H	B
24.7	5	7	7	-	-	-	W	B
25.7	-	9	12	-	-	-	H	B
26.7	5	-	5	9	14	8	W	B
27.8	-	7	5	13	9	10	W	B
28.7	6	5	6	6	5	6	W	B
29.6	5	5	5	4	4	4	W	B
30.7	5	10	5	5	5	4	W	B
31.6	3	5	4	4	3	4	W	B
Nov. 1.6	4	4	4	4	3	2	H	B
2.6	2	3	3	3	3	3	W	B
4.6	4	4	4	5	4	4	W	B
8.6	5	5	5	4	4	4	W	B
9.7	5	5	5	7	6	5	W	B
11.9	5	4	5	6	6	5	H	B
12.7	3	5	4	4	4	3	W	B
14.9	4	5	5	5	6	6	H	B
15.7	4	4	4	4	4	4	H	B
16.8	5	5	6	4	6	4	W	B
17.6	5	6	6	6	4	4	H	B
20.8	6	7	6	5	5	5	W	B
25.8	7	5	7	5	5	5	W/H	B
28.7	3	4	3	3	3	3	W	B
30.9	4	3	3	-	-	-	W	B
Dec. 1.8	9	11	10	11	8	7	H	B
11.8	4	4	4	-	4	4	H	B
14.8	3	4	3	-	4	2	W	B
17.9	-	4	-	-	-	-	H	B
23.8	-	1	1	2	2	1	H	B
24.7	1	2	1	2	2	1	W	B
25.7	3	3	3	3	4	3	H	B
26.7	1	1	1	2	1	1	W	B
28.9	5	5	4	6	3	4	W	B
30.7	3	4	3	3	4	4	W	B
31.7	3	3	3	4	4	3	W	B

B = Billings
D = Dolder
H = Hansen
W = Weber

Table 72

Particulars of Observations, Sacramento Peak, New Mexico
July - December 1953

Date GCT	Green line threshold intensity at 0°	45°	90°	135°	180°	225°	270°	315°	Obs.	Meas.
1953										
Jul. 5.6	11	10	10	9	9	8	9	9	R	Y
9.7	8	7	7	8	8	8	8	8	R	Y
10.7	8	8	8	8	8	8	7	7	R	Y
11.7	11	11	11	11	10	10	10	10	S	Y
12.7	8	8	8	12	11	-	-	-	F	Y
15.7	11	10	9	9	9	8	8	8	S	Y
16.9	12	8	8	8	9	11	13	13	R	Y
18.9	7	6	5	5	6	5	6	6	R	Y
20.7	6	6	6	6	5	6	6	5	R	Y
21.6	9	9	8	8	8	8	8	8	F	Y
23.9	9	8	8	-	-	-	-	-	S	Y
24.7	8	8	8	8	7	7	7	7	R	Y
26.6	7	7	7	7	6	7	7	7	R	Y
27.7	12	10	10	10	9	10	9	9	F	Y
28.6	11	11	11	10	10	11	10	10	R	Y
Aug. 1.8	4	4	3	4	3	4	4	4	R	Y
2.7	5	4	4	5	4	4	4	4	S	Y
3.8	6	6	10	10	9	9	9	9	F	Y
4.8	11	10	11	13	-	-	-	-	F	Y
5.7	12	11	11	11	9	10	10	10	R	Y
7.7	11	10	10	10	10	10	-	-	F	Y
8.7	7	8	7	7	8	9	8	8	S	Y
9.7	7	6	6	6	6	6	6	6	R	Y
10.7	11	11	11	11	10	10	10	10	S	Y
11.7	10	9	5	9	10	9	8	8	F/R	Y
12.7	8	7	7	8	-	-	-	-	F	Y
13.7	9	8	8	8	9	8	8	8	R	Y
14.7	11	10	10	10	10	10	10	11	B	Y
15.7	11	11	11	12	11	11	10	10	B	Y
19.7	5	7	3	-	-	-	-	-	F	Y
21.7	6	6	6	7	12	11	6	6	R	Y
24.7	5	6	-	-	-	-	-	-	S	Y
25.6	10	8	8	8	8	8	8	7	R	Y
26.6	9	8	8	8	7	7	8	8	F	Y
27.7	10	10	9	9	8	8	8	9	F	Y
28.7	12	11	10	10	10	10	9	9	F	Y
29.7	7	7	7	8	8	9	9	8	B	Y
30.6	8	8	8	8	8	8	8	7	R	Y
31.6	13	11	11	11	12	11	11	10	R	Y
Sep. 2.9	4	3	3	3	3	3	3	3	S	Y
3.8	6	5	5	5	5	5	5	5	S	Y
4.9	10	11	10	11	9	9	9	11	B	Y
5.7	11	10	10	10	10	11	11	10	B	Y
6.7	11	10	9	11	10	-	-	10	F	Y
7.7	10	9	9	9	10	9	9	9	F	Y
8.7	7	7	7	7	4	5	5	4	S	Y
9.7	7	7	7	8	7	7	8	8	S	Y
11.7	5	4	5	5	4	4	4	3	B	Y
12.7	9	9	9	7	9	10	8	9	F	Y
13.7	7	7	7	7	8	-	-	-	F	Y
14.7	10	9	9	8	9	9	9	10	S	Y
15.7	9	8	8	8	9	9	9	8	S	Y
16.7	7	7	7	7	8	7	7	7	B	Y
17.6	8	7	7	7	8	8	9	7	B	Y
18.7	10	9	9	9	9	9	9	10	R	Y
19.8	5	4	5	9	6	9	8	8	F	Y
20.7	11	9	9	9	12	11	12	12	F	Y
22.8	12	11	11	12	12	12	12	12	B	Y
23.2	13	12	12	12	12	12	12	11	S	Y
24.8	11	9	10	10	9	10	10	11	S	Y
25.7	8	8	8	8	9	9	9	8	R	Y
26.7	8	8	8	8	8	8	8	8	S	Y
27.6	8	8	8	9	10	9	9	9	B	Y
28.7	11	11	11	9	9	11	11	10	B	Y
29.7	6	5	5	5	5	5	5	5	R	Y

Date GCT	Green line threshold intensity at 0°	45°	90°	135°	180°	225°	270°	315°	Obs.	Meas.
1953										
Sep. 30.7	11	11	12	12	12	11	10	9	R	Y
Oct. 1.7	5	5	5	5	6	5	5	5	R	Y
2.7	6	6	6	6	5	5	5	5	R	Y
3.7	8	7	7	9	9	7	5	-	B	Y
4.7	8	8	8	9	7	8	8	8	B	Y
5.7	11	9	10	10	11	11	11	9	S	Y
6.7	10	10	11	10	10	10	10	10	S	Y
7.7	4	4	4	5	5	5	5	5	S	Y
8.7	11	11	11	11	12	11	11	12	R	Y
9.7	8	8	8	9	8	8	9	9	B	Y
10.7	9	8	8	9	9	8	8	8	B	Y
11.7	9	9	9	10	9	10	10	9	S	Y
12.8	15	9	7	6	-	-	4	11	S	Y
13.7	15	15	14	15	12	13	11	11	R	Y
14.7	4	3	4	4	4	4	3	3	R	Y
15.7	6	5	5	5	5	4	6	6	B	Y
16.7	9	9	10	9	9	9	7	9	B	Y
23.9	4	4	5	5	5	4	4	4	S	Y
25.7	4	4	4	5	5	4	4	4	R	Y
26.7	7	6	6	7	7	7	7	7	R	Y
27.7	5	5	5	5	5	4	5	5	B	Y
28.7	5	5	4	5	5	6	5	6	B	Y
31.7	4	4	4	4	4	3	5	4	R	Y
Nov. 2.7	4	3	3	3	3	3	4	3	B	Y
3.7	5	5	5	6	5	5	5	5	B	Y
4.8	7	8	8	8	8	8	8	8	S	Y
7.7	5	4	5	4	5	5	5	5	R	Y
8.7	4	3	4	4	4	4	4	4	B	Y
9.7	3	4	4	5	4	4	4	4	B	Y
11.7	5	4	5	5	5	5	5	5	S	Y
12.7	4	4	4	4	4	4	4	4	R	Y
13.7	5	3	3	3	5	4	4	4	R	Y
14.7	4	3	3	4	4	4	5	5	B	Y
15.7	6	5	5	5	5	5	6	5	B	Y
16.8	7	6	6	6	6	6	7	6	S	Y
17.7	9	8	9	8	8	8	8	8	S	Y
20.8	4	4	4	3	5	5	5	5	B	Y
21.9	7	7	6	7	7	7	11	7	B	Y
22.7	7	6	6	7	7	7	11	7	S	Y
23.9	14	12	13	12	13	13	12	11	S	Y
24.7	5	5	5	5	5	5	11	6	R	Y
25.7	4	4	4	4	4	4	4	4	R	Y
26.7	5	5	5	7	5	5	4	4	S	Y
28.7	5	3	3	3	5	4	4	4	B	Y
29.7	3	2	2	3	3	3	3	3	B	Y
30.7	4	4	4	4	4	4	4	4	R	Y
Dec. 1.6	5	6	5	5	6	6	6	6	R	Y
6.7	6	6	6	6	6	6	6	7	R	Y
7.7	5	5	5	5	5	5	5	5	R	Y
9.8	7	6	6	7	8	15	15	15	B	Y
10.7	5	5	7	6	6	6	6	6	S	Y
12.8	8	8	8	8	9	8	8	9	R	Y
13.8	11	9	9	13	>15	>15	>15	9	R	Y
14.7	8	6	7	7	8	7	7	7	B	Y
15.8	7	6	7	7	7	7	8	8	R	Y
19.7	7	7	8	8	7	8	8	8	R	Y
21.7	8	7	8	9	10	10	9	9	B	Y
23.9	11	11	12	13	13	12	12	12	R	Y
24.9	10	11	11	12	11	11	12	13	R	Y
25.7	6	6	6	7	7	7	7	6	R	Y
27.7	8	8	8	9	8	10	8	9	B	Y
28.7	8	9	9	8	8	8	8	8	S	Y
29.7	9	9	9	9	9	9	10	9	S	Y
30.7	7	7	7	7	8	7	7	8	R	Y
31.7	7	7	7	7	7	7	7	8	R	Y

B = Bergstrom
F = Foster
R = Ramsey
S = Schnable
Y = Yü

Table 73

Zürich Provisional Relative Sunspot Numbers

December 1953

Date	R_Z*	Date	R_Z*
1	0	17	0
2	0	18	0
3	0	19	0
4	0	20	0
5	0	21	0
6	0	22	0
7	0	23	0
8	0	24	8
9	0	25	9
10	0	26	9
11	0	27	9
12	0	28	10
13	0	29	9
14	0	30	0
15	0	31	0
16	0	Mean:	1.7

*Dependent on observations at Zürich Observatory and its stations at Locarno and Arosa.

Table 74

American Relative Sunspot Numbers - R_A'

July - November 1953

1953	Jul.	Aug.	Sep.	Oct.	Nov.
1	0	0	2	0	13
2	4	5	0	0	12
3	0	13	0	4	13
4	0	16	0	3	4
5	0	14	1	1	1
6	0	11	12	19	0
7	0	12	14	18	0
8	0	25	16	15	1
9	8	32	17	17	0
10	15	55	18	6	0
11	15	72	19	8	0
12	17	66	28	13	0
13	17	67	20	18	0
14	24	60	27	29	0
15	21	52	44	24	0
16	17	55	44	18	0
17	17	43	40	4	0
18	16	36	38	0	0
19	13	31	20	0	0
20	11	18	20	0	1
21	4	14	15	0	0
22	0	14	14	0	0
23	0	3	11	1	0
24	0	0	13	0	0
25	0	0	18	0	3
26	0	0	16	13	1
27	0	1	2	4	2
28	0	1	0	0	1
29	0	0	0	0	0
30	0	0	3	0	0
31	0	0		7	
Mean:	6.4	23.1	15.7	7.2	1.7

Table 75

Solar Flares, December 1953

No solar flares were reported for the month of December 1953.

Table 76

Indices of Geomagnetic Activity for November 1953

Preliminary values of international character-figures, C;
Geomagnetic planetary three-hour-range indices, Kp;
Magnetically selected quiet and disturbed days

Gr. Day 1953	C	Values Kp three-hour interval 1 2 3 4	5 6 7 8	Sum	Final Selected Days
1	0.4	0+ 0+ 1o 2o	1- 1o 2+ 2-	9+	Five
2	0.0	1- 0+ 2o 1+	1- 1+ 1- 1o	8o	Quiet
3	0.2	1o 1- 1o 1o	2- 2o 2o 2-	11o	
4	0.1	2+ 1+ 1+ 1+	1- 0+ 0+ 2-	9+	2
5	0.8	2+ 4- 3+ 3o	4o 3- 2o 0o	21o	9
					10
6	0.3	1+ 1- 3- 2o	3o 2- 1- 1-	13-	28
7	0.2	0+ 2o 2- 2-	1o 1o 2- 1o	10+	30
8	0.3	0+ 0+ 2- 1+	1+ 1+ 1- 2o	9o	
9	0.0	2+ 2o 1+ 1-	0o 0o 0o 1-	7o	
10	0.0	0o 0o 0+ 0+	0+ 0o 1- 0+	2o	
11	0.4	0o 0o 0+ 1-	2o 1+ 2+ 2o	9-	Five
12	1.1	3+ 1+ 2- 2+	4- 3- 4o 4+	23+	Disturbed
13	1.6	4+ 6- 5- 4+	6- 4+ 5- 4+	38o	
14	1.5	3o 5+ 4- 3+	5+ 5- 4+ 4o	34-	13
15	1.6	2o 4o 5o 5o	5o 5+ 5o 2+	34-	14
					15
16	1.4	5o 6- 4o 3o	3o 4+ 4+ 4-	33o	16
17	1.1	4- 3o 3- 3o	3o 4o 3+ 4+	27o	19
18	0.9	3+ 4o 3o 4o	3o 3- 2+ 3-	25o	
19	1.5	4+ 5- 4- 4-	5+ 3+ 5- 5-	34+	
20	1.2	4o 4+ 4+ 3+	3o 4- 4o 4+	31o	
21	0.7	3+ 2+ 3- 4-	3o 1o 2+ 2o	20+	Ten
22	0.1	2- 1- 2o 1o	2o 1- 2- 2-	11+	Quiet
23	1.3	1+ 2- 4- 4o	3+ 4- 5o 4o	27-	
24	0.7	4o 4- 4- 3-	1o 2+ 2- 2+	21+	1
25	0.7	2o 4o 3- 2o	3- 2o 3o 4-	22o	2
					4
26	0.2	4- 2+ 2- 1o	1- 1- 1o 1o	12o	7
27	0.3	2+ 1+ 4- 2-	2+ 2- 1+ 2o	16+	8
28	0.0	1- 1+ 0+ 1-	0o 0o 0+ 1+	5-	9
29	0.1	3- 2+ 1+ 2-	0+ 0o 0o 0+	9-	10
30	0.0	1o 0o 1- 1-	1- 1o 1o 1-	6-	11
					28
Mean:	0.62				30

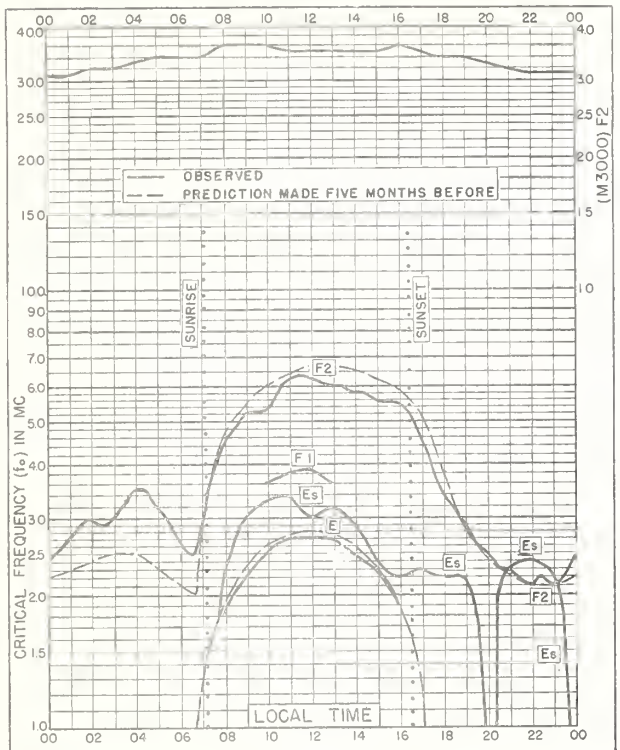


Fig 1. WASHINGTON, D.C.
38.7°N, 77.1°W DECEMBER 1953

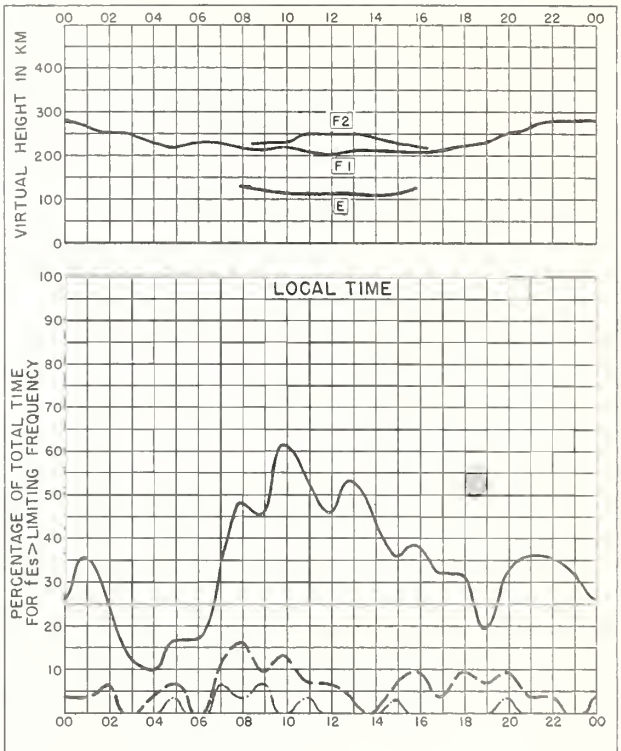


Fig. 2. WASHINGTON, D. C. DECEMBER 1953

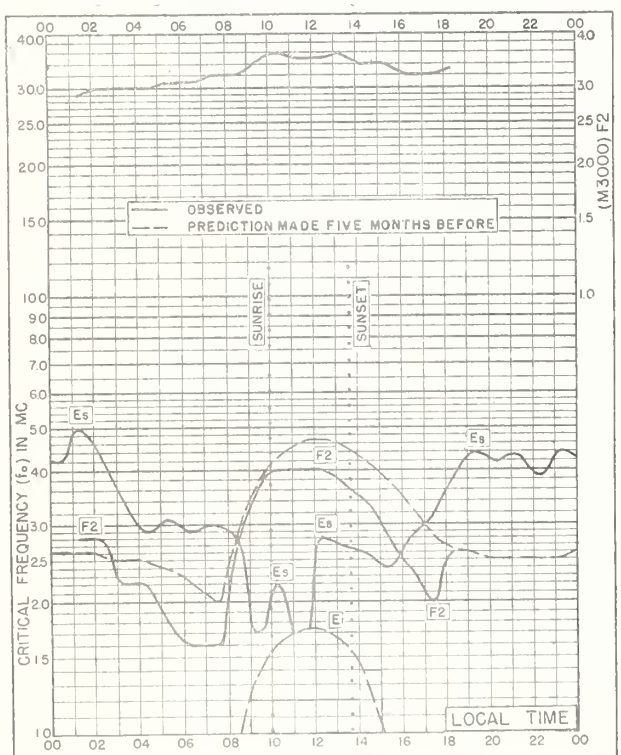


Fig. 3. TROMSO, NORWAY
69.7°N, 19.0°E NOVEMBER 1953

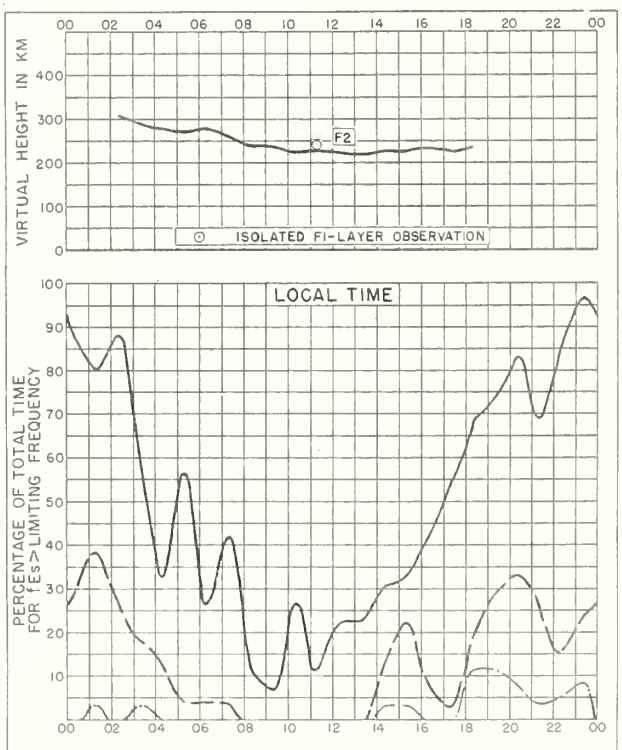


Fig. 4. TROMSO, NORWAY NOVEMBER 1953

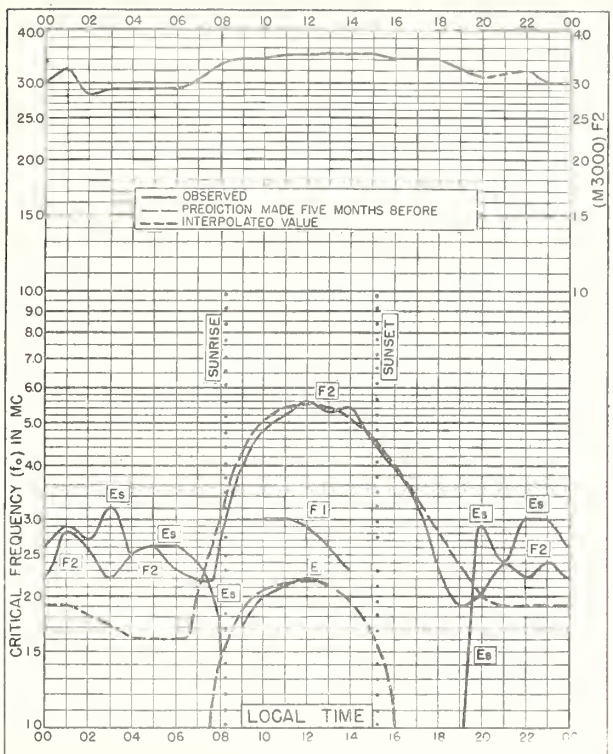


Fig. 5. ANCHORAGE, ALASKA
61.2°N, 149.9°W NOVEMBER 1953

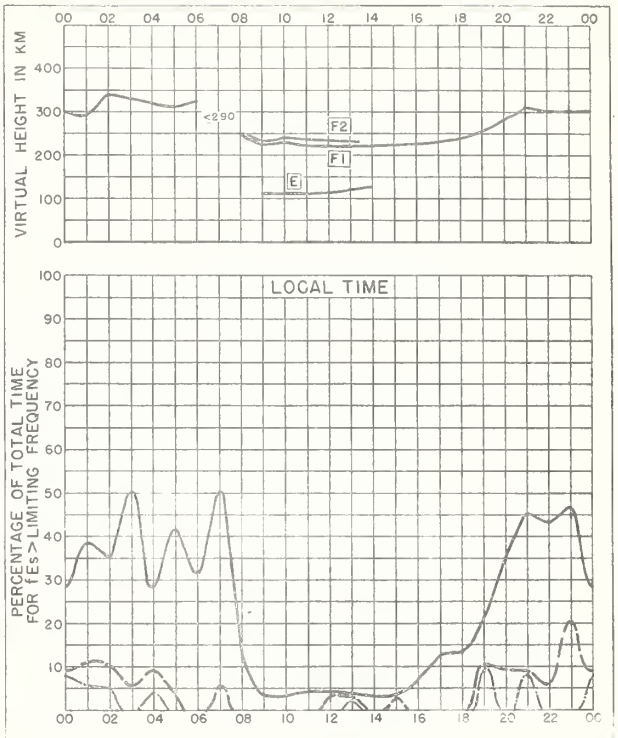


Fig. 6. ANCHORAGE, ALASKA NOVEMBER 1953

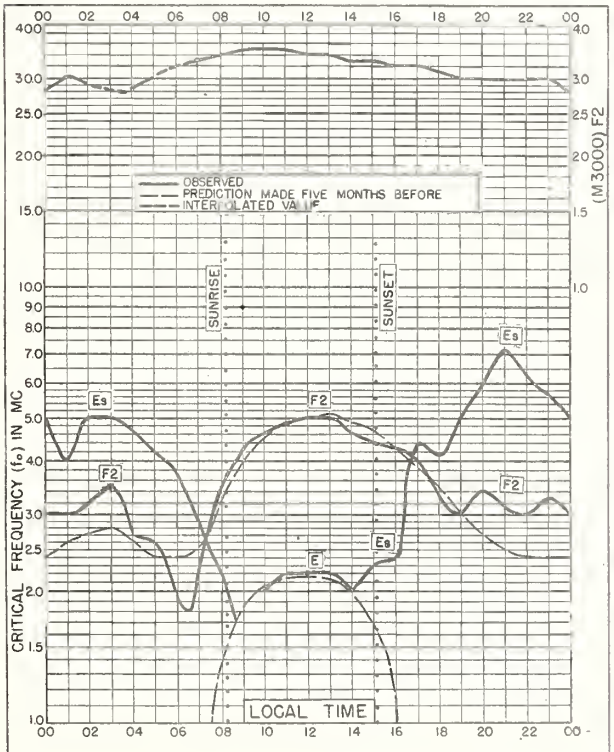
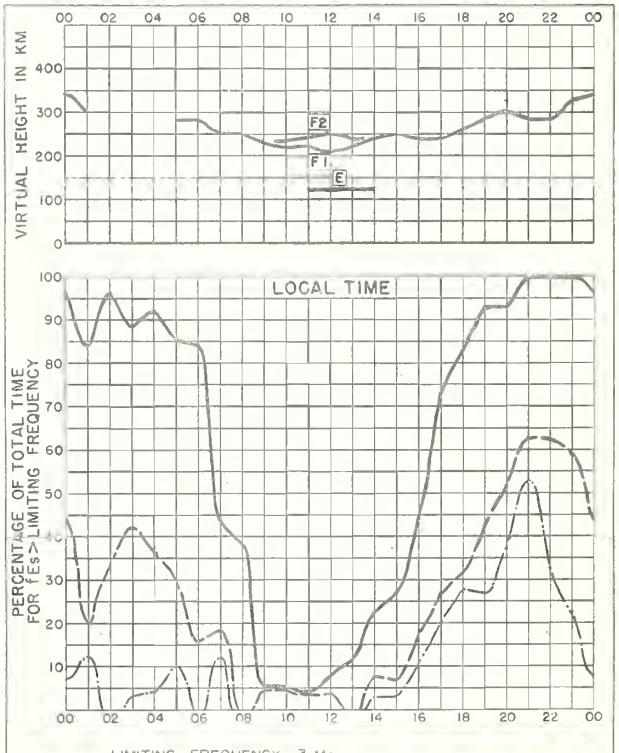


Fig. 7. NARSARSSUAK, GREENLAND
61.2°N, 45.4°W NOVEMBER 1953



NOVEMBER 1953

Fig. 8. NARSARSSUAK, GREENLAND

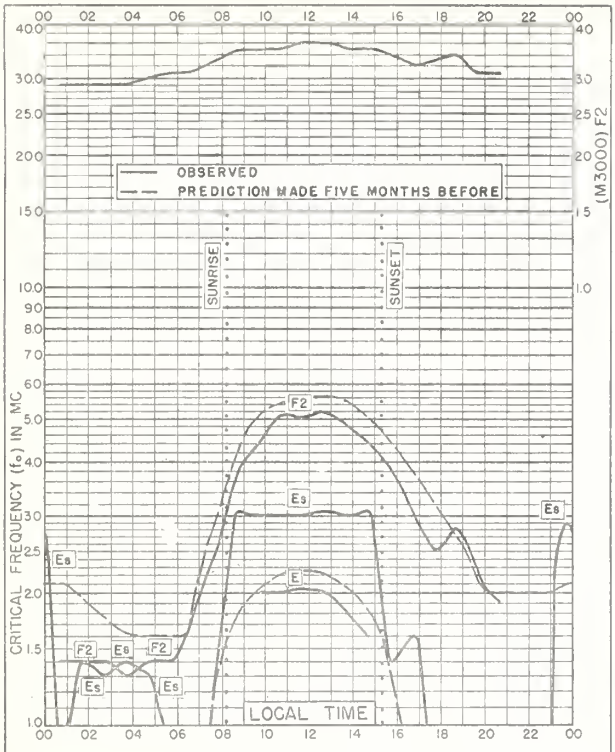


Fig. 9. OSLO, NORWAY
60.0°N, 11.1°E NOVEMBER 1953

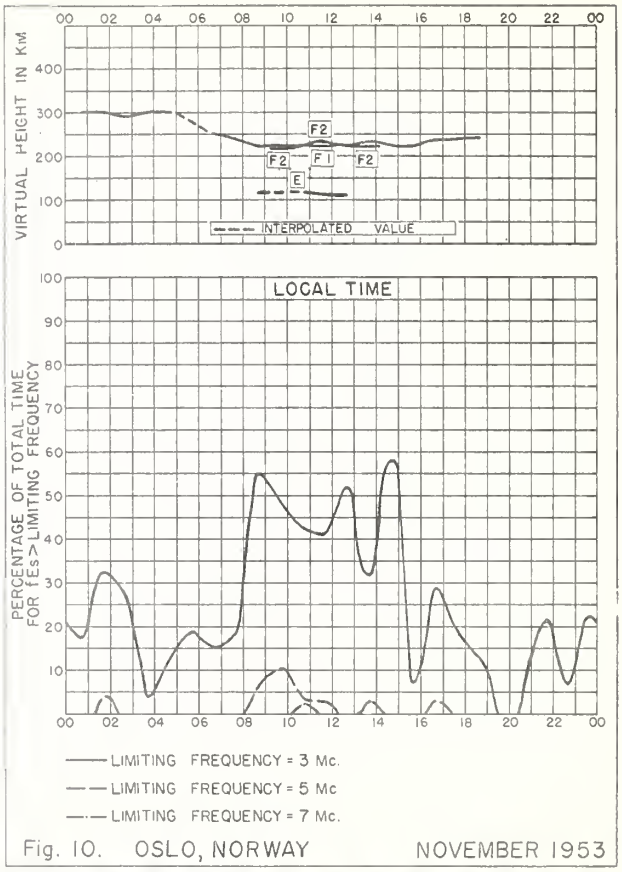


Fig. 10. OSLO, NORWAY NOVEMBER 1953

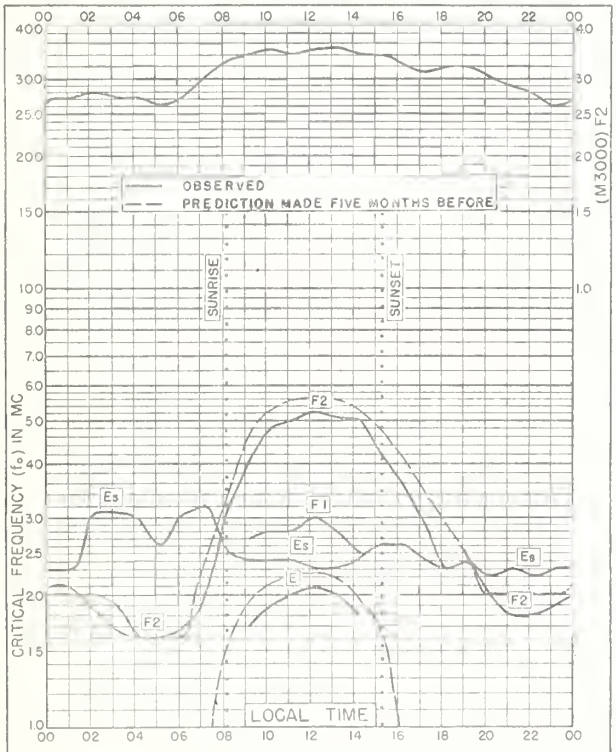


Fig. 11. UPSALA, SWEDEN
59.8°N, 17.6°E NOVEMBER 1953

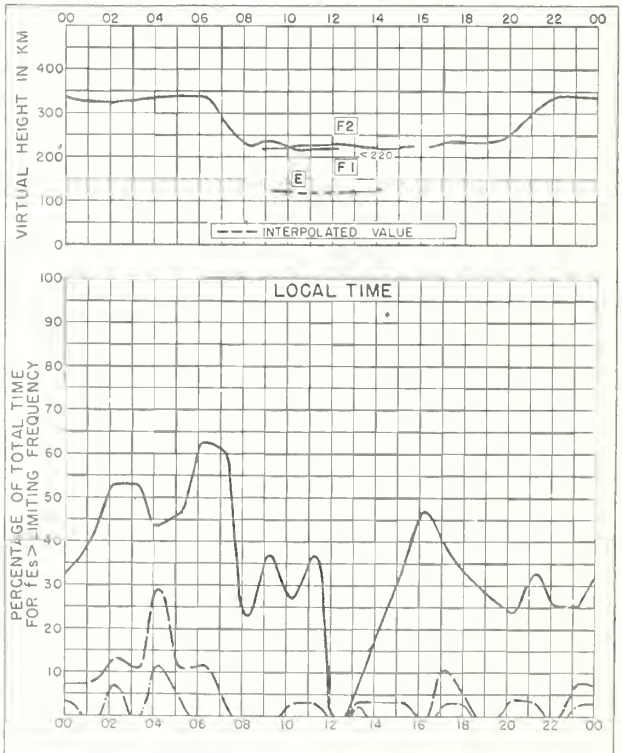


Fig. 12. UPSALA, SWEDEN NOVEMBER 1953

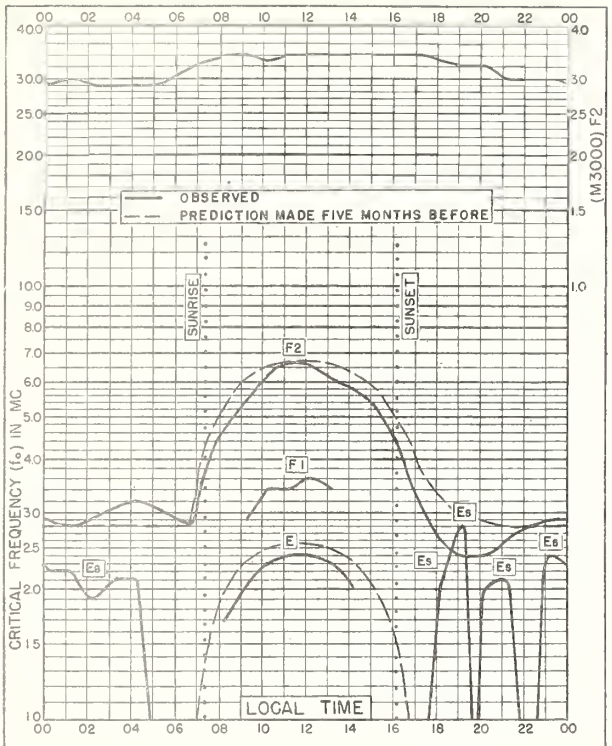


Fig.13. ADAK, ALASKA
51.9°N, 176.6°W NOVEMBER 1953

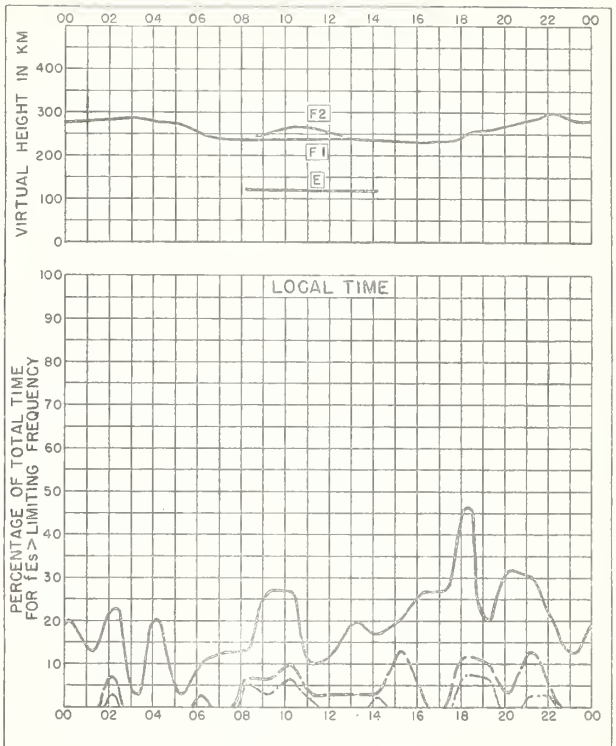


Fig.14. ADAK, ALASKA NOVEMBER 1953

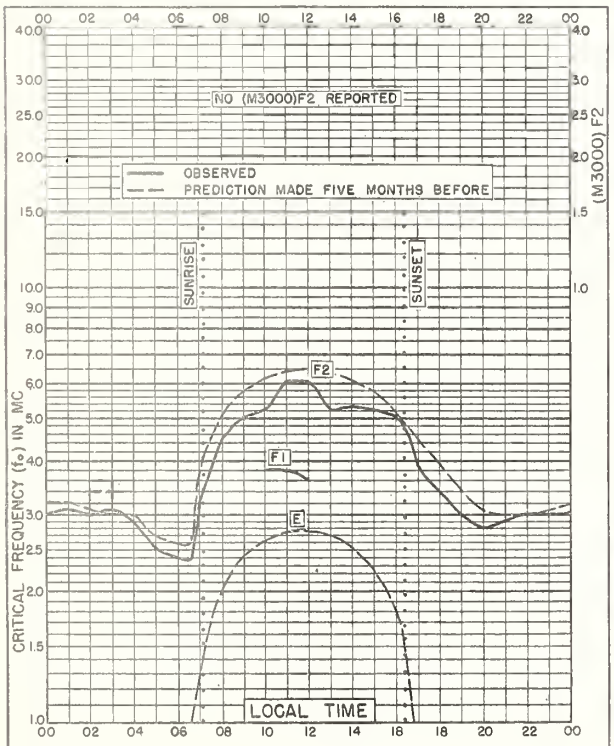


Fig. 15. GRAZ, AUSTRIA
47.1°N, 15.5°E NOVEMBER 1953

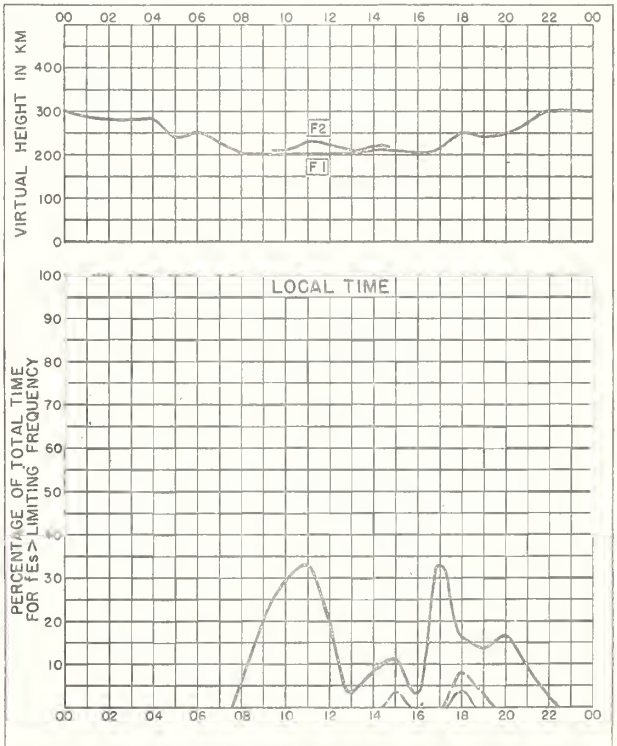


Fig. 16. GRAZ, AUSTRIA NOVEMBER 1953

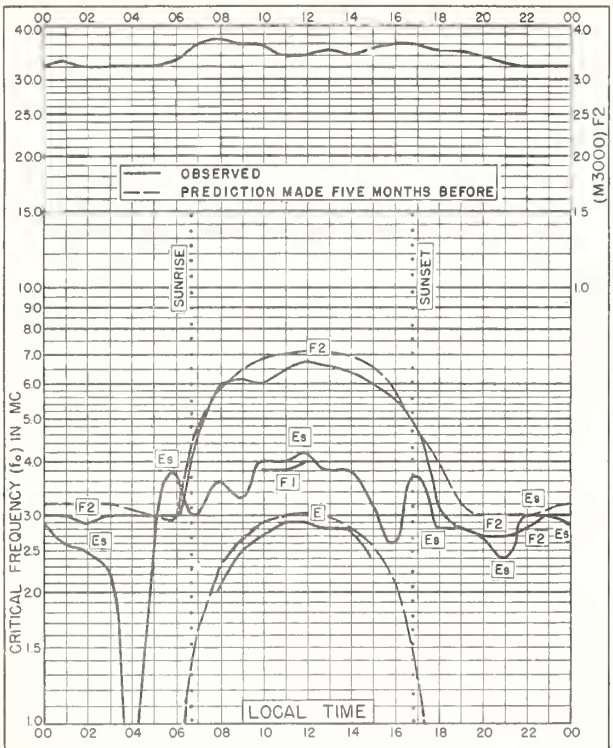
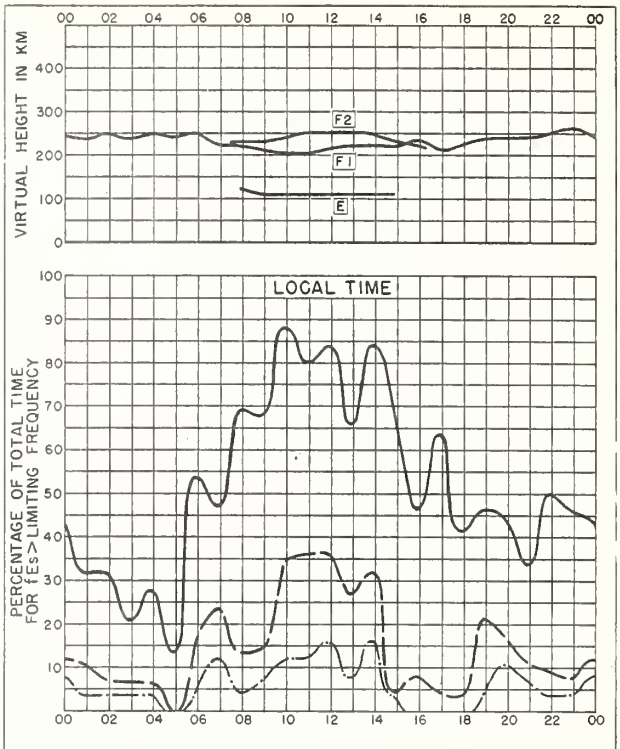


Fig.17. SAN FRANCISCO, CALIFORNIA
37.4°N, 122.2°W NOVEMBER 1953



NOVEMBER 1953

Fig.18. SAN FRANCISCO, CALIFORNIA

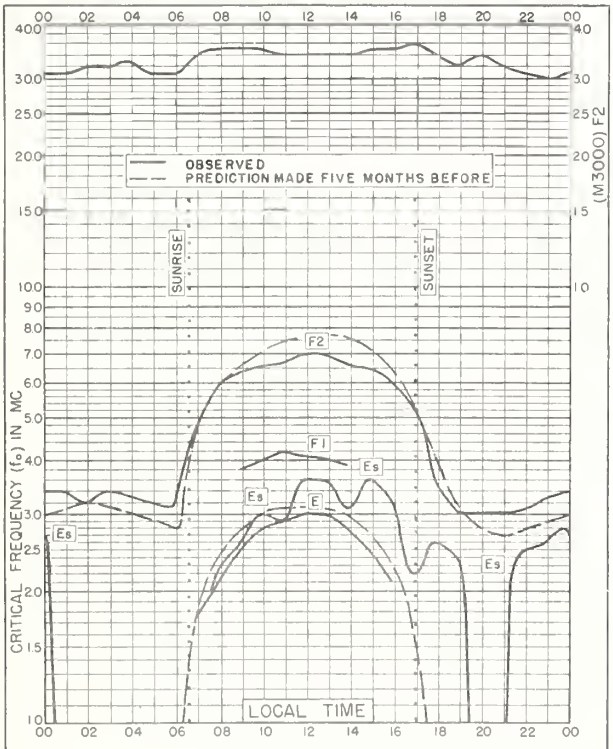
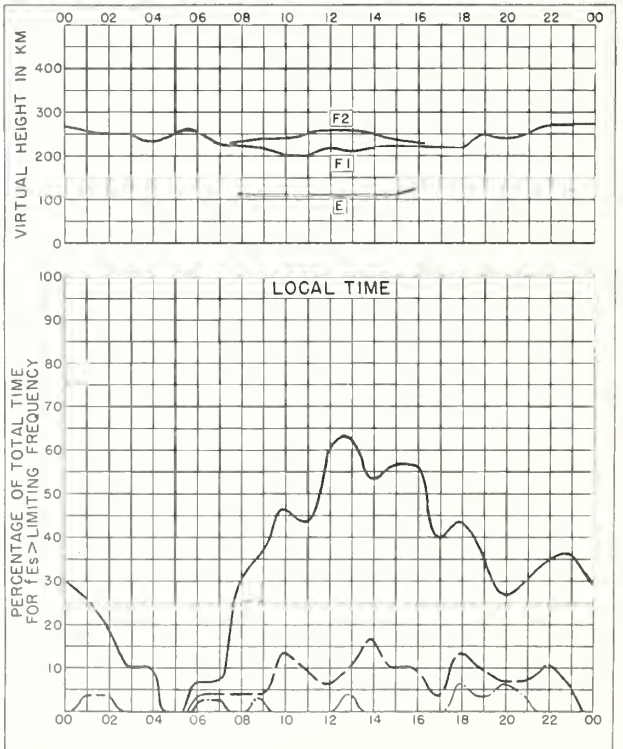


Fig. 19. WHITE SANDS, NEW MEXICO
32.3°N, 106.5° W NOVEMBER 1953



NOVEMBER 1953

Fig. 20. WHITE SANDS, NEW MEXICO

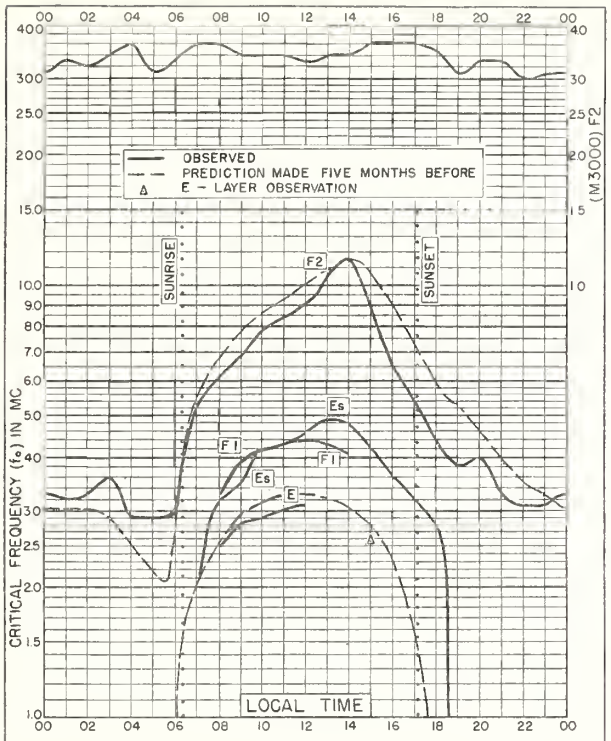


Fig. 21. OKINAWA I.
26.3°N, 127.8°E NOVEMBER 1953

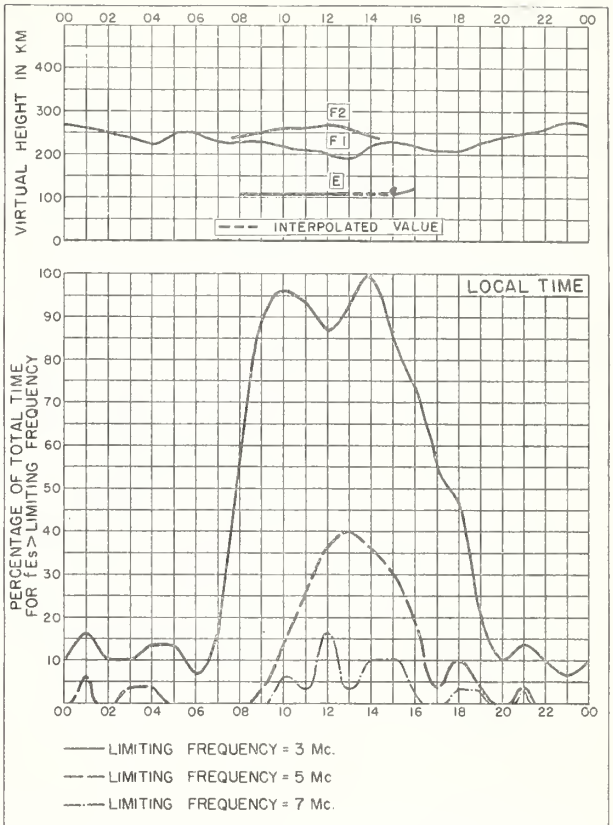


Fig. 22. OKINAWA I. NOVEMBER 1953

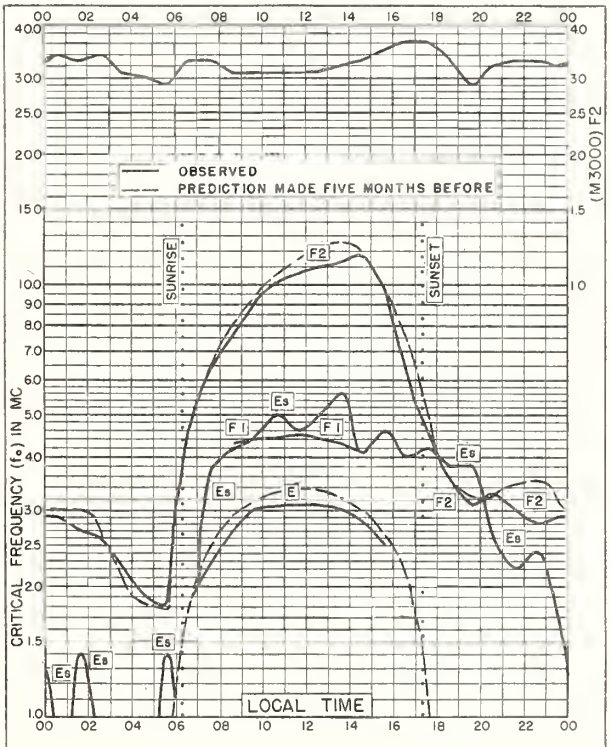


Fig.23. MAUI, HAWAII
20.8°N, 156.5°W NOVEMBER 1953

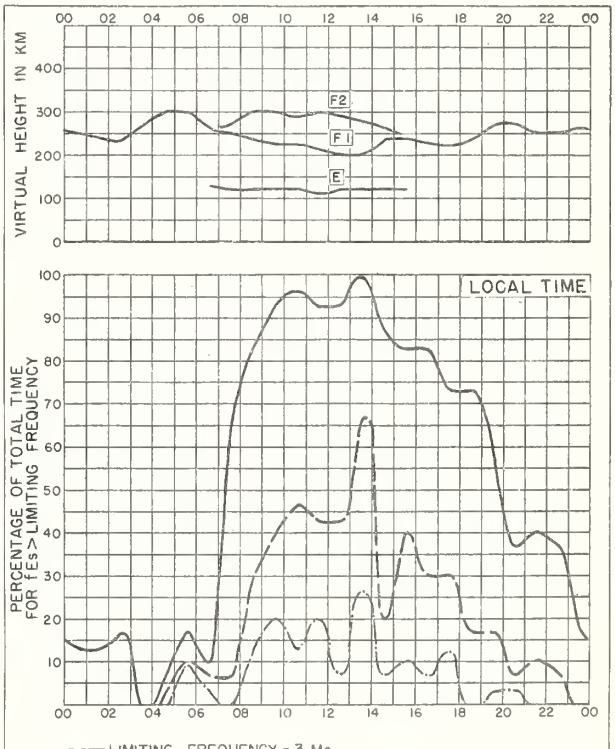


Fig.24. MAUI, HAWAII NOVEMBER 1953

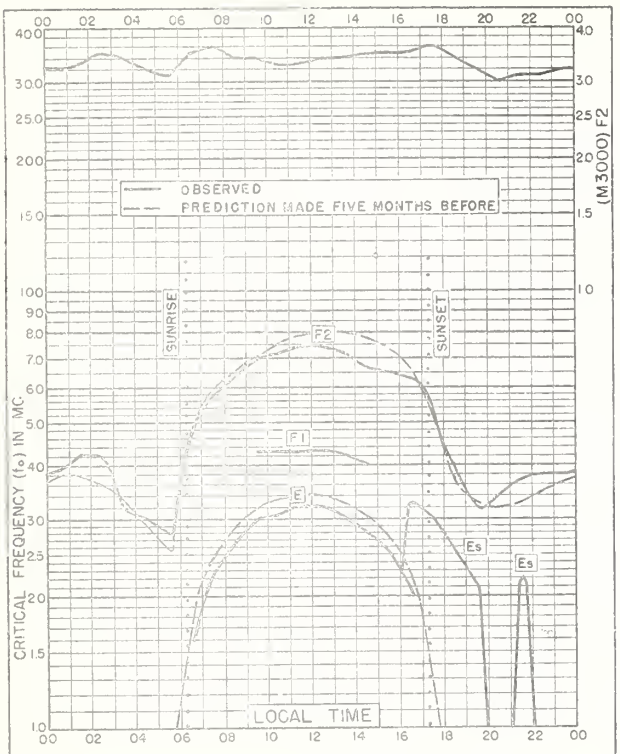


Fig. 25. PUERTO RICO, W. I.
18.5°N, 67.2°W NOVEMBER 1953

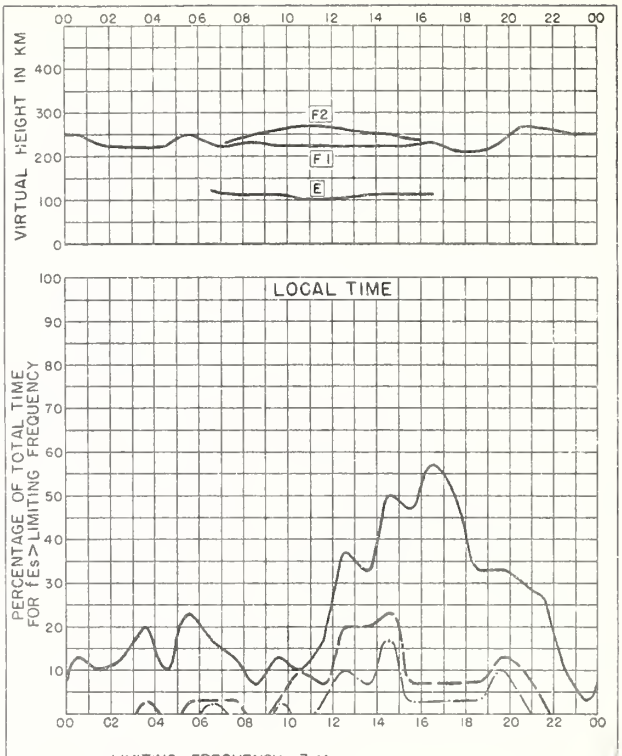


Fig. 26. PUERTO RICO, W. I. NOVEMBER 1953

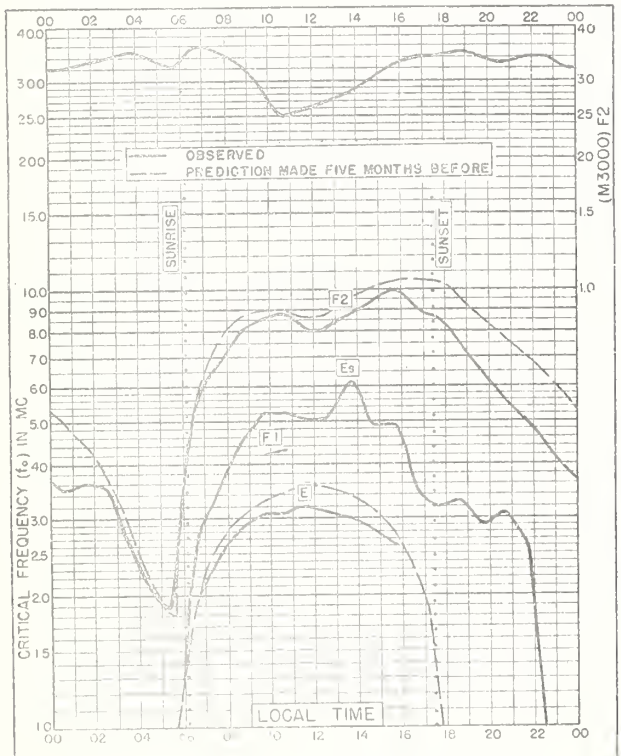


Fig. 27. GUAM I.
13.6°N, 144.9°E NOVEMBER 1953

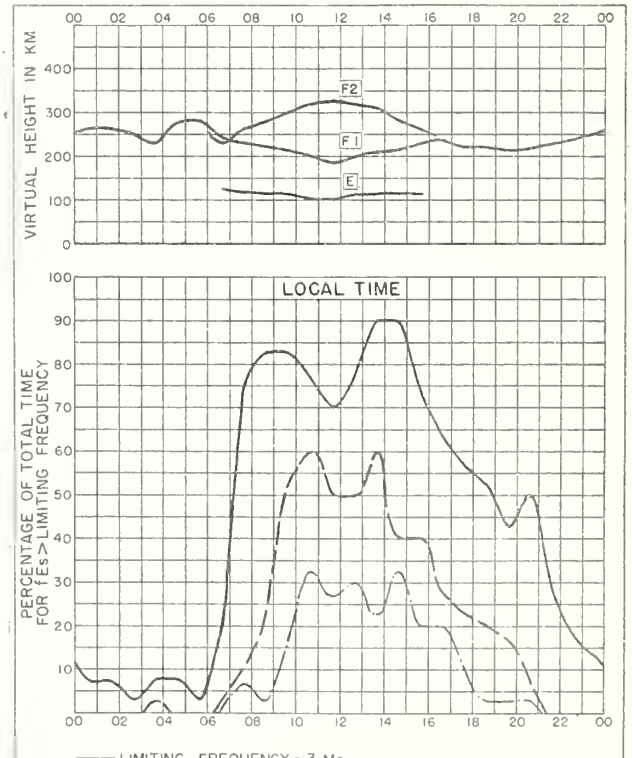


Fig. 28. GUAM I. NOVEMBER 1953

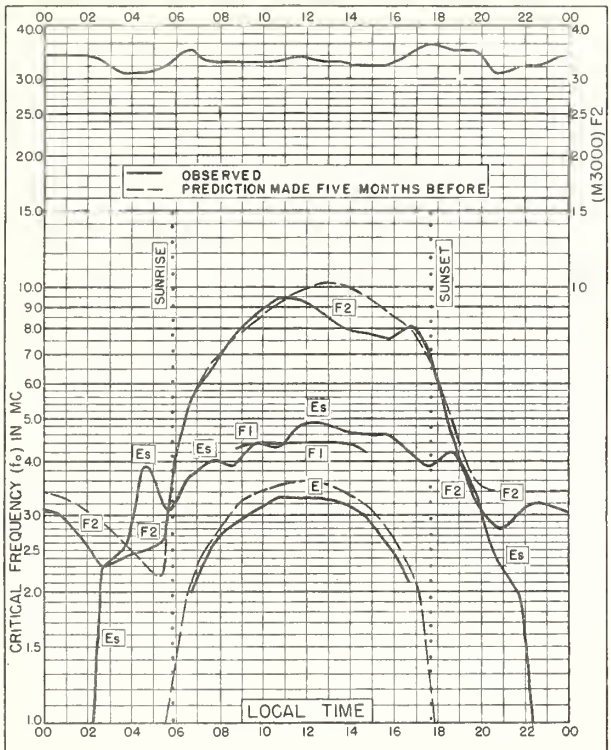
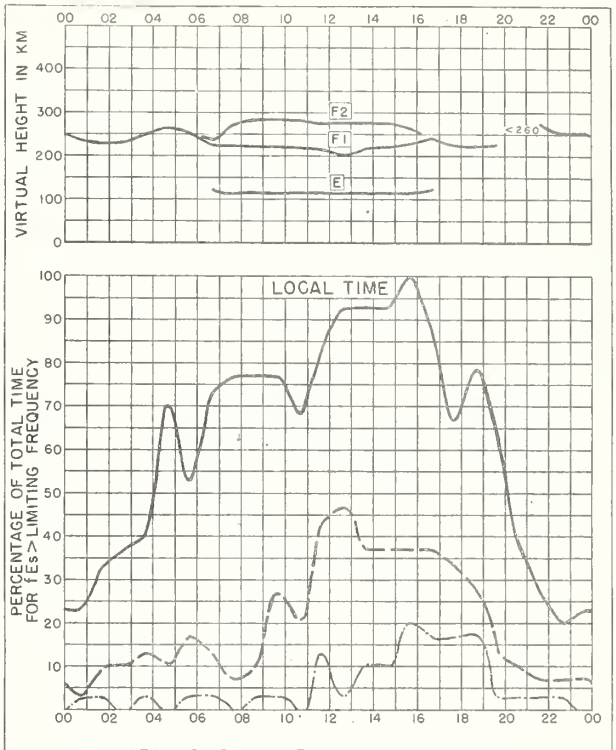


Fig. 29. PANAMA CANAL ZONE
9.4°N, 79.9°W NOVEMBER 1953



NOVEMBER 1953

Fig. 30 PANAMA CANAL ZONE

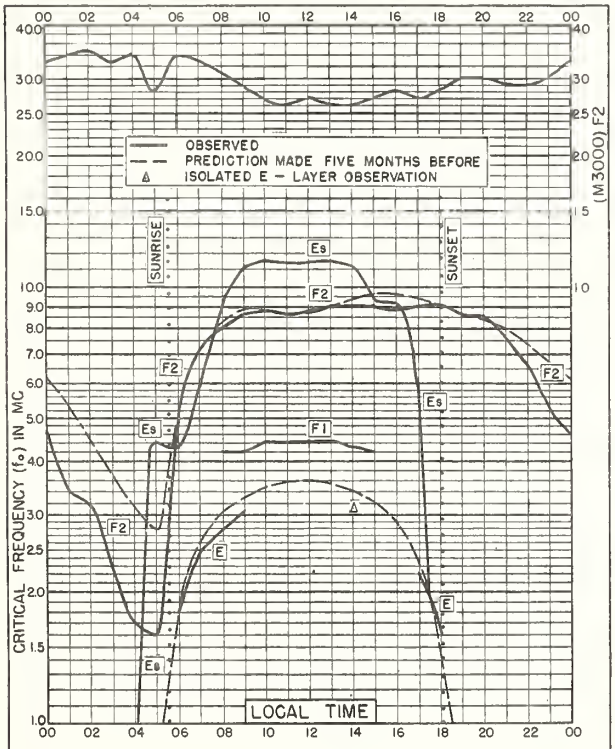


Fig. 31. HUANCAYO, PERU
12.0°S, 75.3°W NOVEMBER 1953

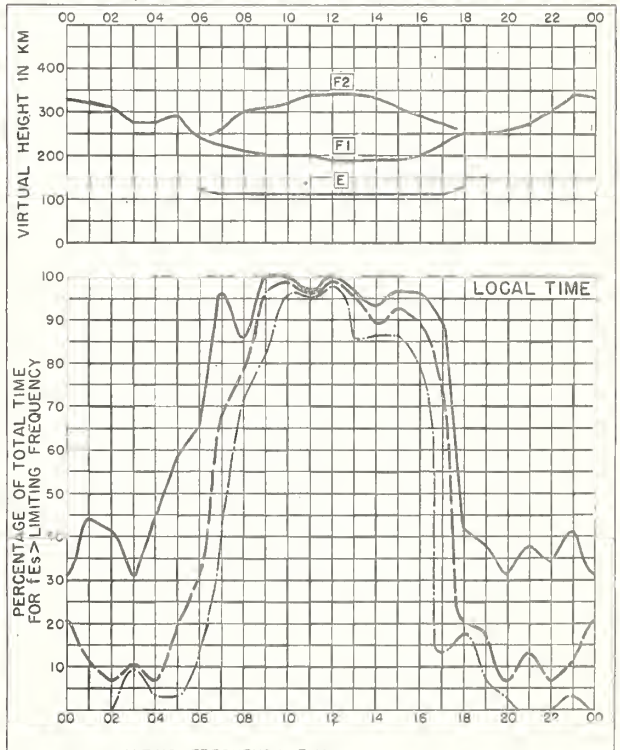


Fig. 32. HUANCAYO, PERU NOVEMBER 1953

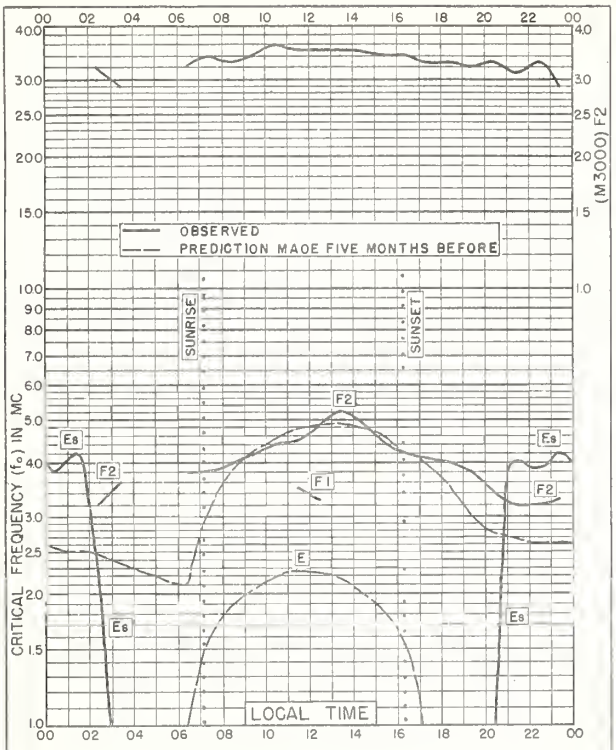


Fig. 33. KIRUNA, SWEDEN
67.8°N, 20.5°E OCTOBER 1953

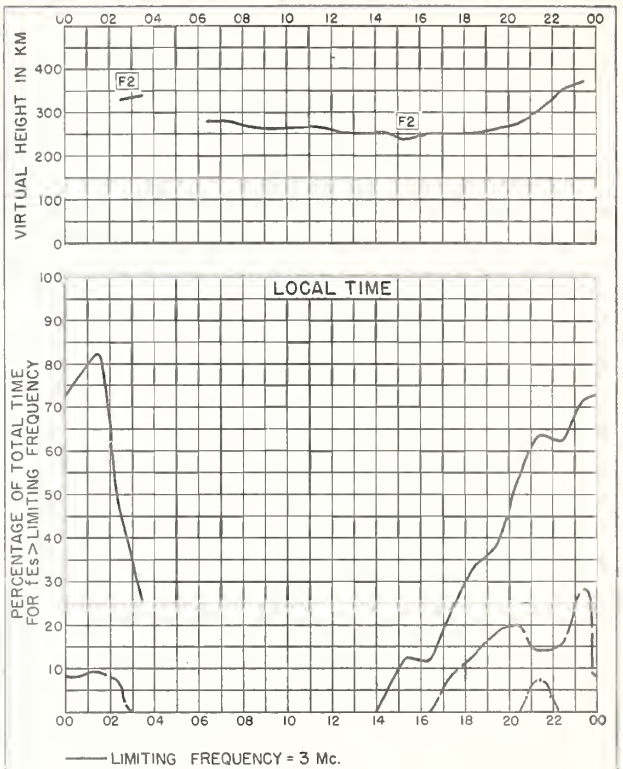


Fig. 34. KIRUNA, SWEDEN OCTOBER 1953

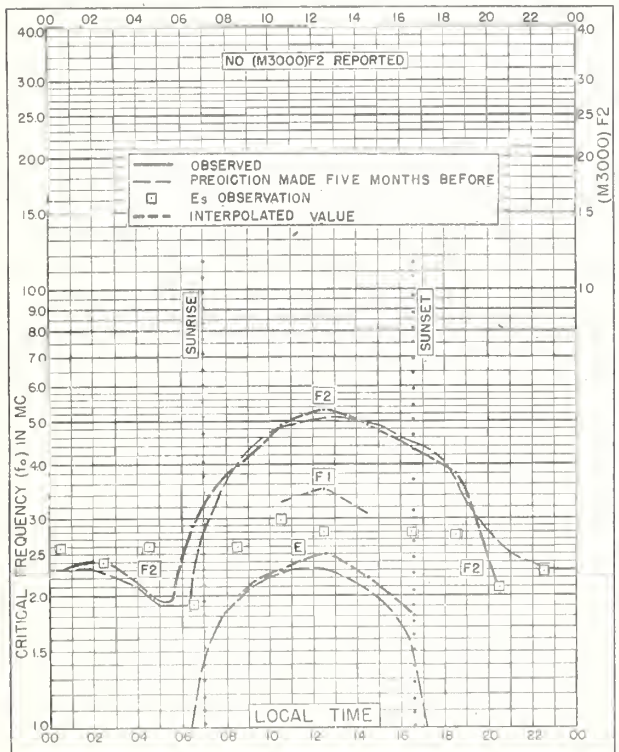


Fig.35. LULEA, SWEDEN
65.6°N, 22.1°E OCTOBER 1953

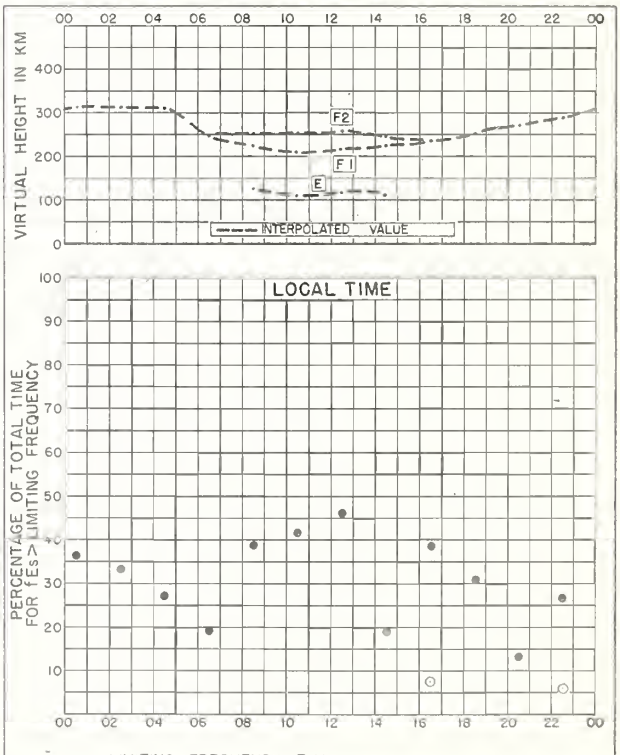


Fig.36. LULEA, SWEDEN OCTOBER 1953

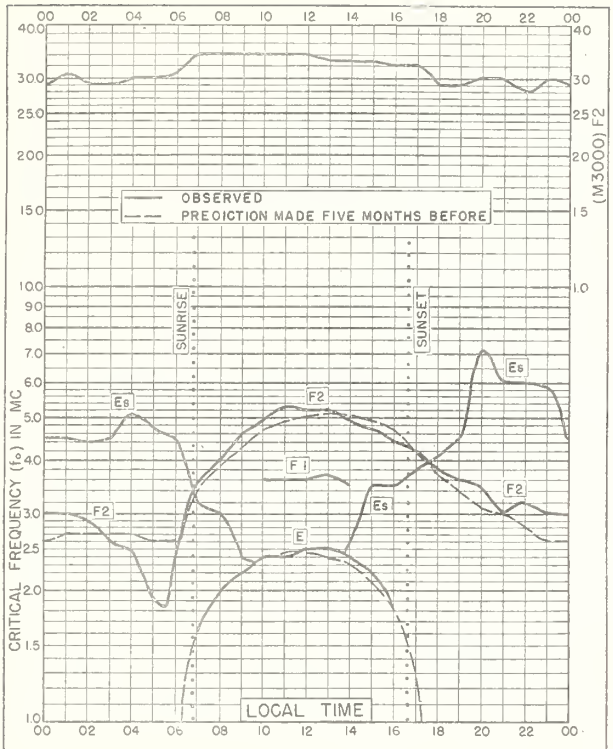
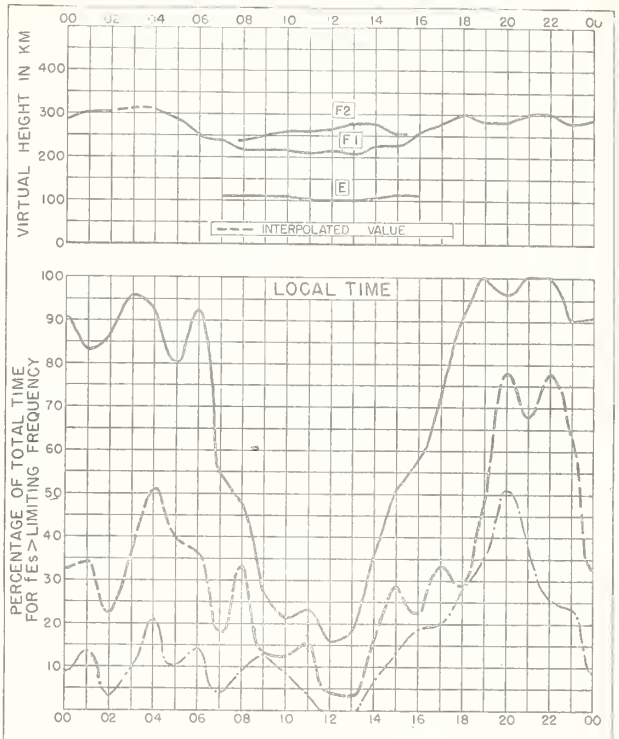


Fig.37. NARSARSSUAK, GREENLAND
61.2°N, 45.4°W OCTOBER 1953



OCTOBER 1953
Fig.38 NARSARSSUAK, GREENLAND

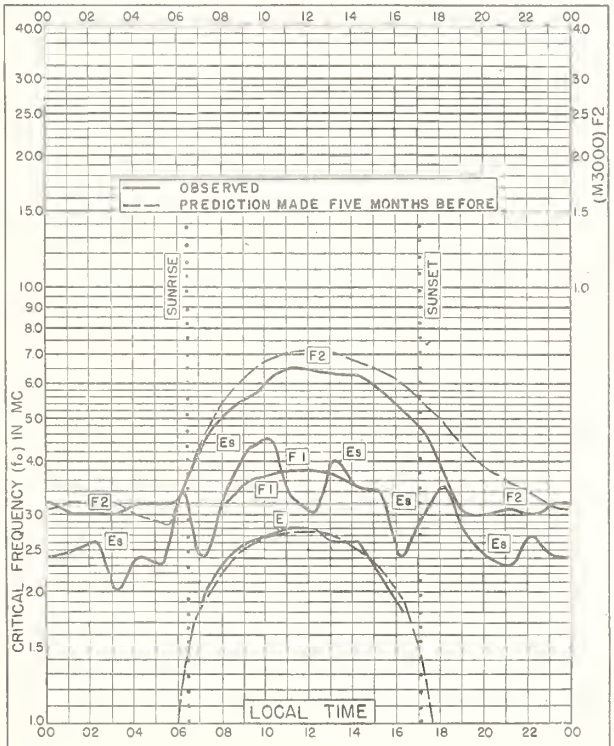


Fig.39. ADAK, ALASKA
51.9°N, 176.6°W OCTOBER 1953

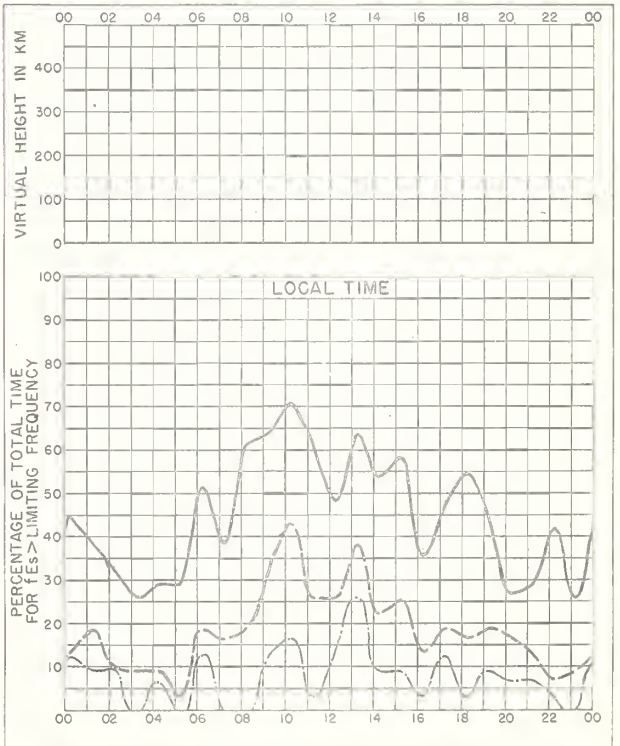


Fig.40. ADAK, ALASKA OCTOBER 1953

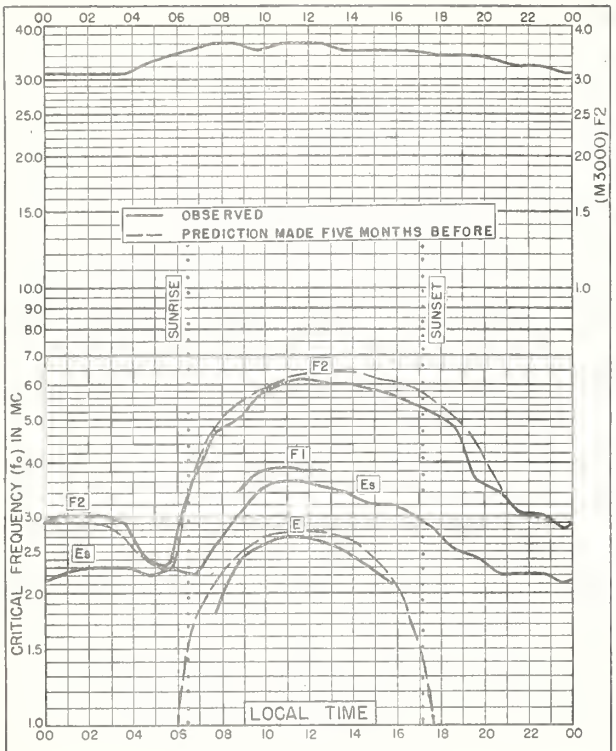


Fig. 41. LINDAU/HARZ, GERMANY
51.6°N, 10.1°E OCTOBER 1953

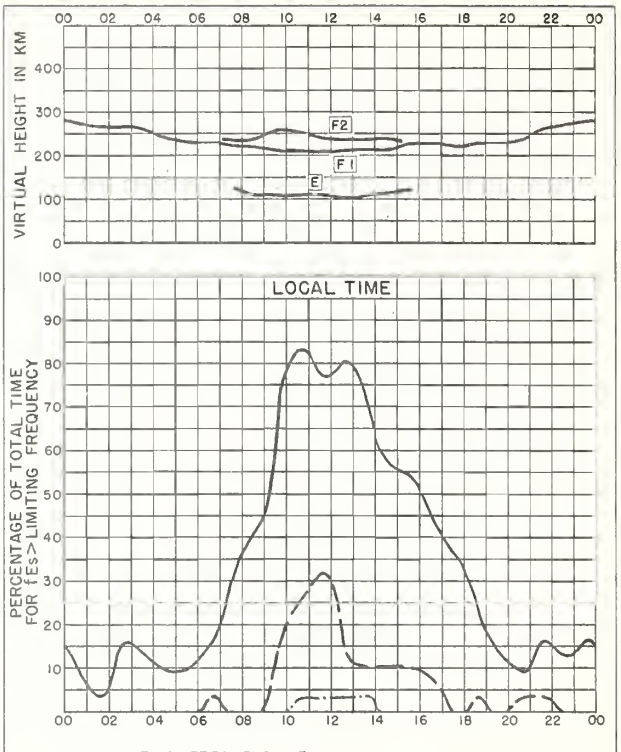


Fig. 42. LINDAU/HARZ, GERMANY

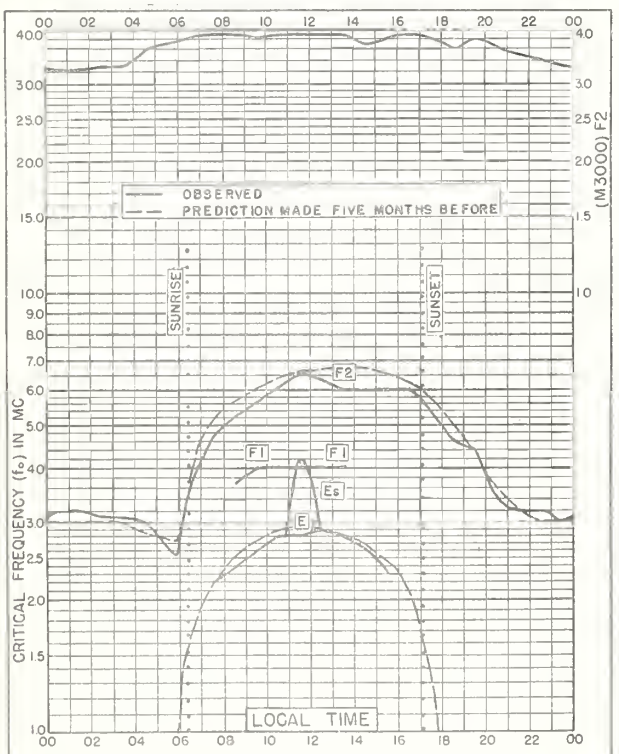


Fig. 43. SCHWARZENBURG, SWITZERLAND
46.8°N, 7.3°E OCTOBER 1953

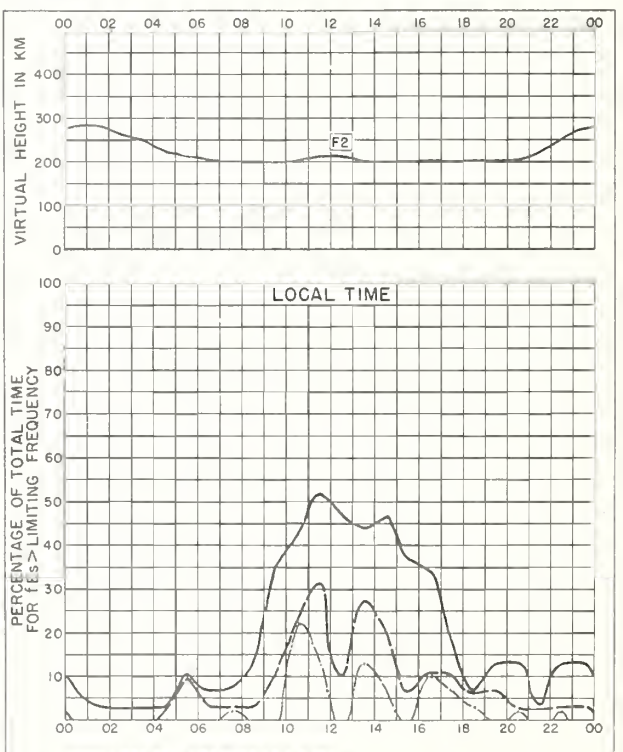


Fig. 44. SCHWARZENBURG, SWITZERLAND

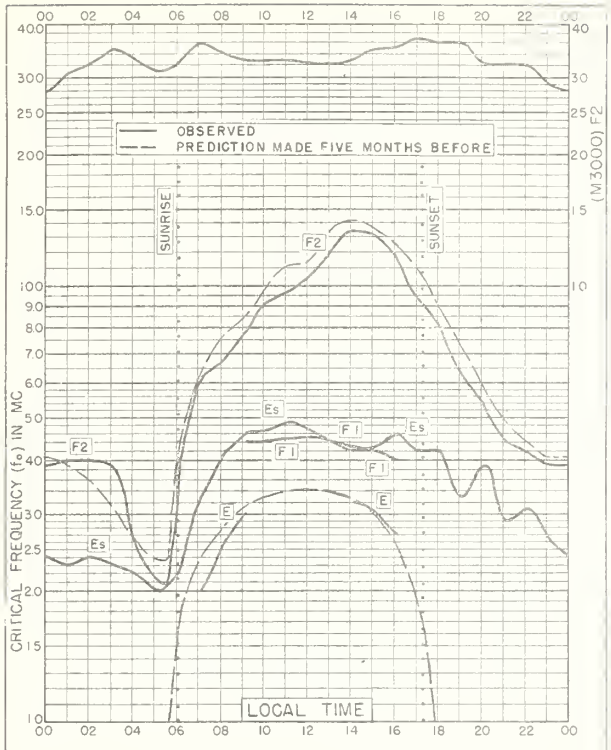


Fig. 45. FORMOSA, CHINA
25.0°N, 121.5°E OCTOBER 1953

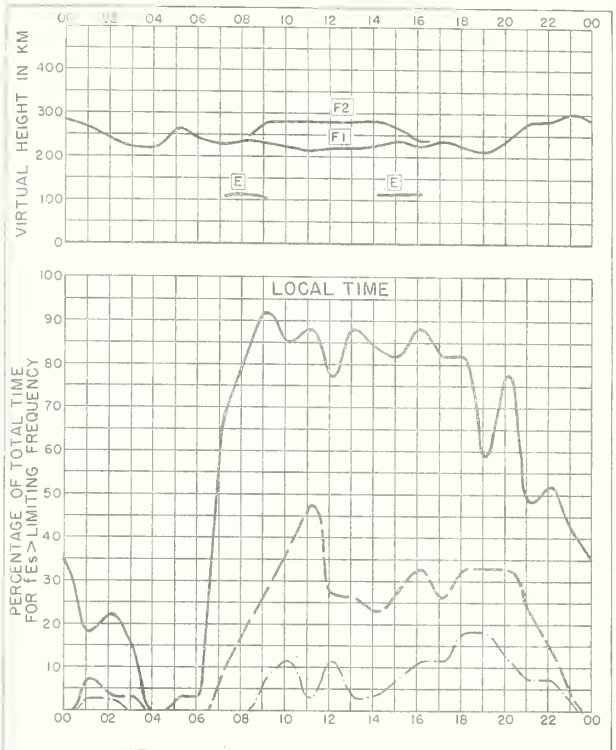


Fig. 46. FORMOSA, CHINA OCTOBER 1953

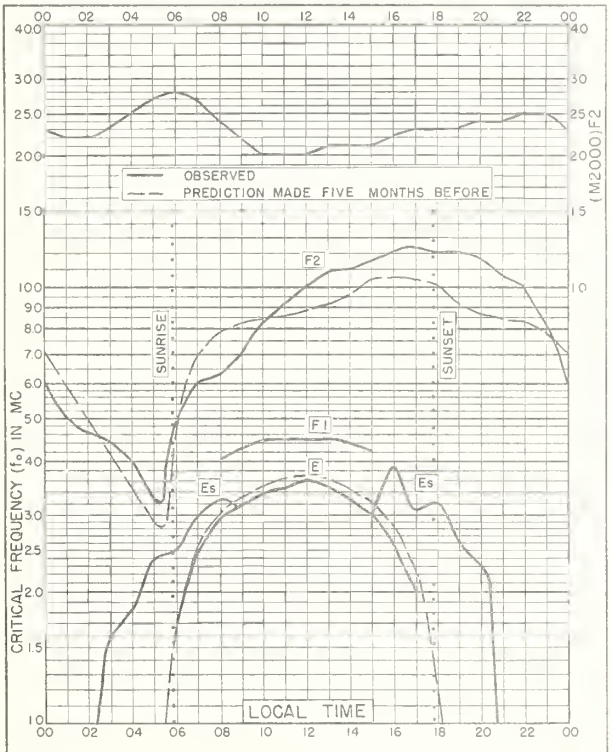


Fig. 47. LEOPOLDVILLE, BELGIAN CONGO
4.3°S, 15.3°E OCTOBER 1953

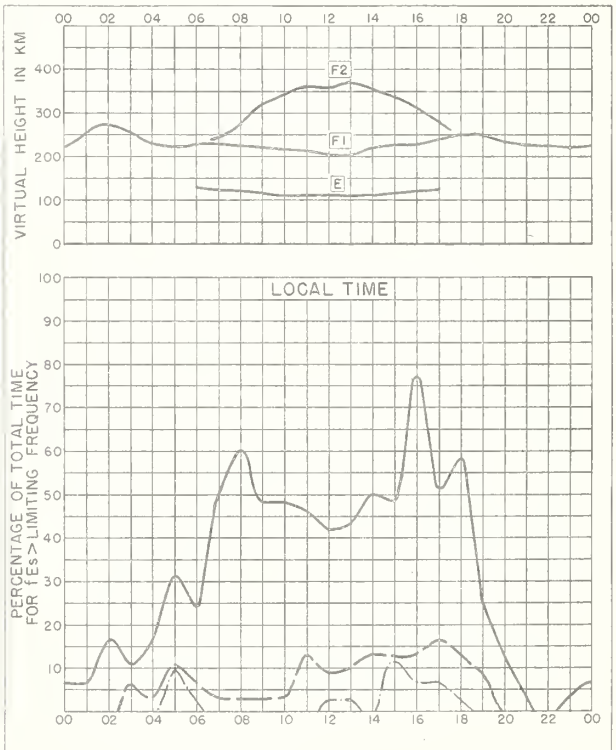


Fig. 48. LEOPOLDVILLE, BELGIAN CONGO OCTOBER 1953

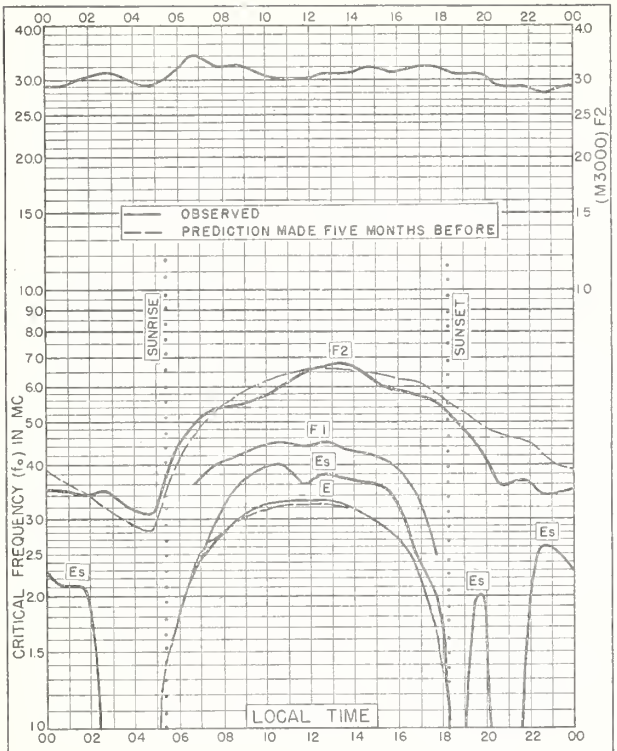


Fig. 49. WATHEROO, W. AUSTRALIA
30.3°S, 115.9°E OCTOBER 1953

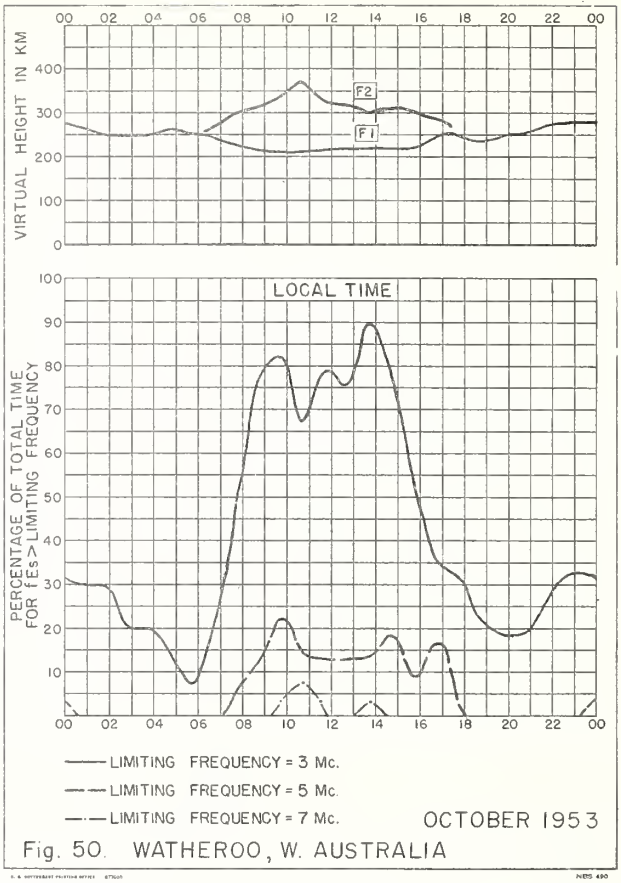


Fig. 50. WATHEROO, W. AUSTRALIA

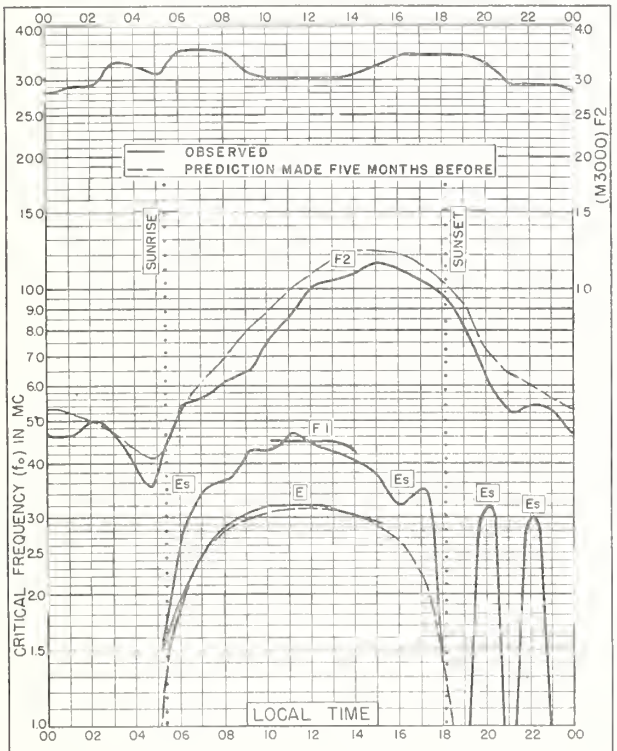


Fig. 51. BUENOS AIRES, ARGENTINA
34.5°S, 58.5°W OCTOBER 1953

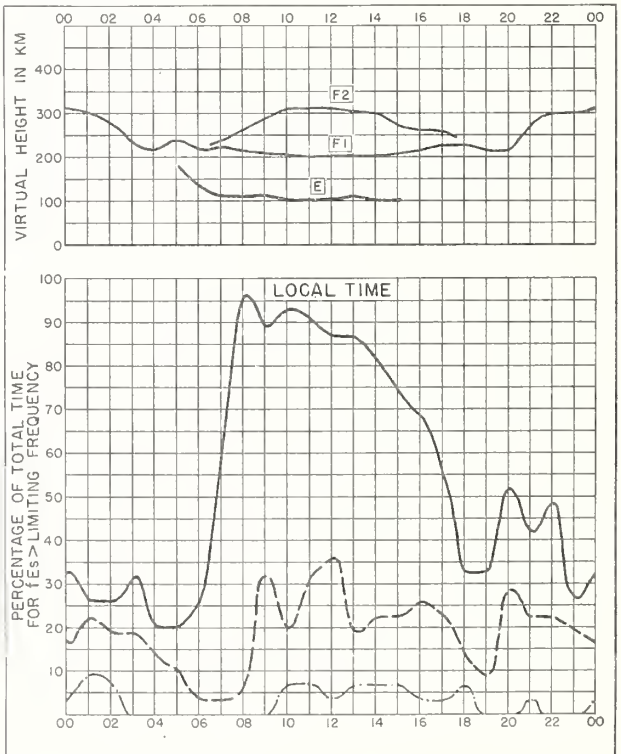


Fig. 52. BUENOS AIRES, ARGENTINA

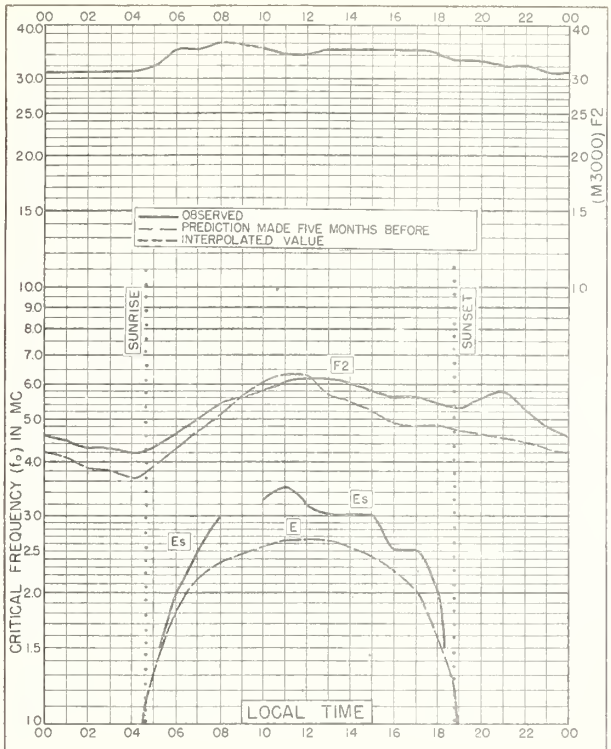


Fig.53. DECEPCION I.
63.0°S, 60.7°W OCTOBER 1953

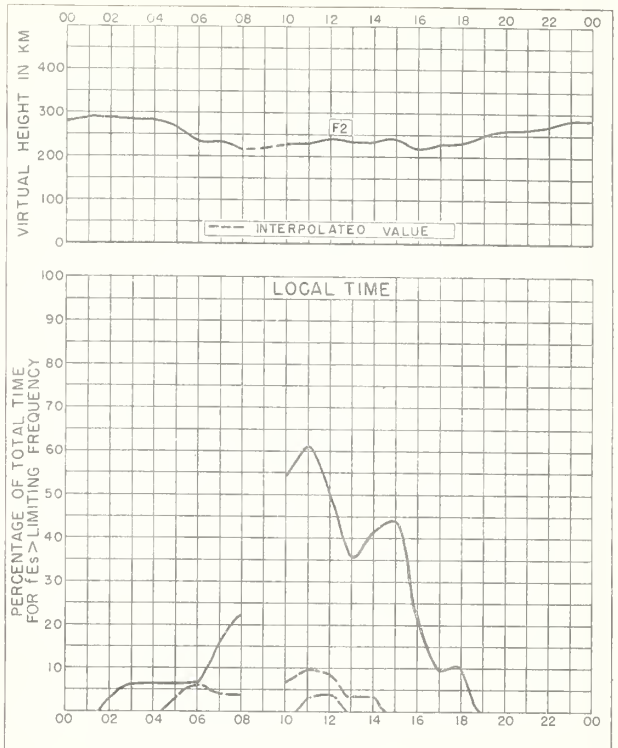


Fig.54 DECEPCION I. OCTOBER 1953

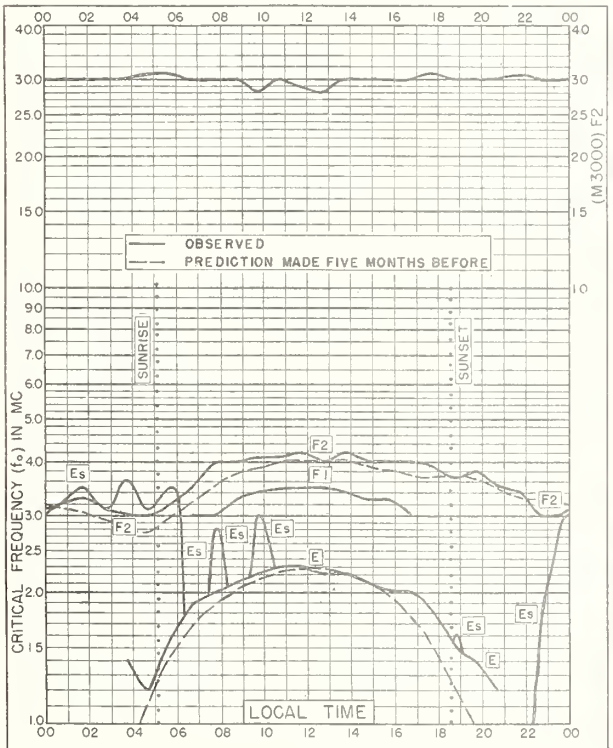


Fig.55. RESOLUTE BAY, CANADA
74.7°N, 94.9°W SEPTEMBER 1953

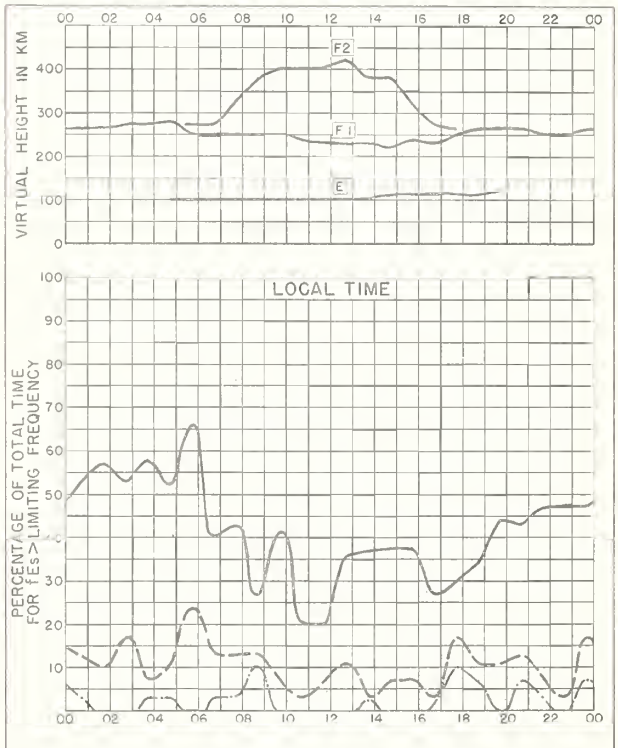


Fig.56. RESOLUTE BAY, CANADA SEPTEMBER 1953

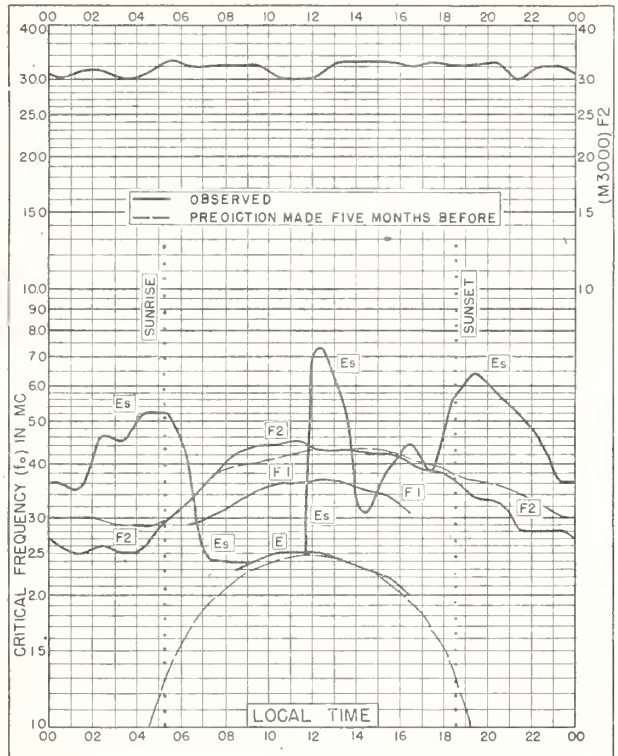


Fig.57. GODHAVN, GREENLAND
69.2°N, 53.5°W SEPTEMBER 1953

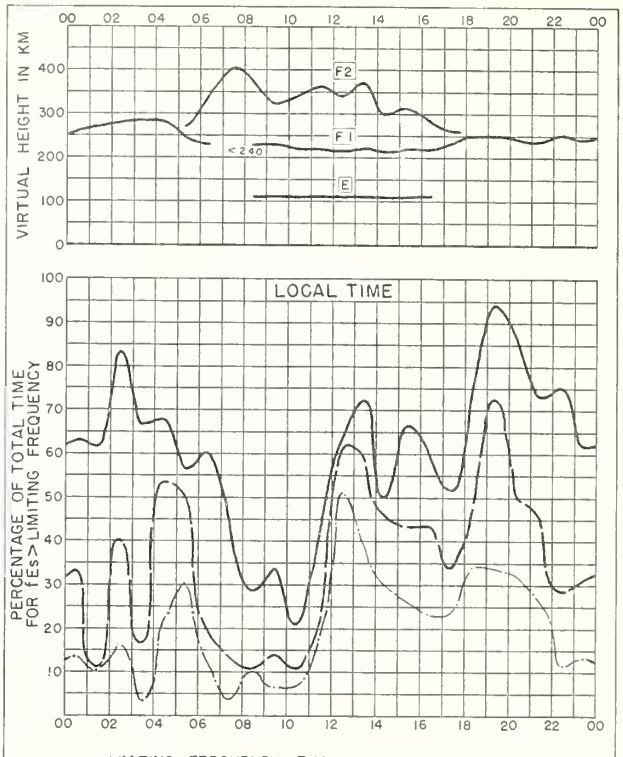


Fig.58. GODHAVN, GREENLAND SEPTEMBER 1953

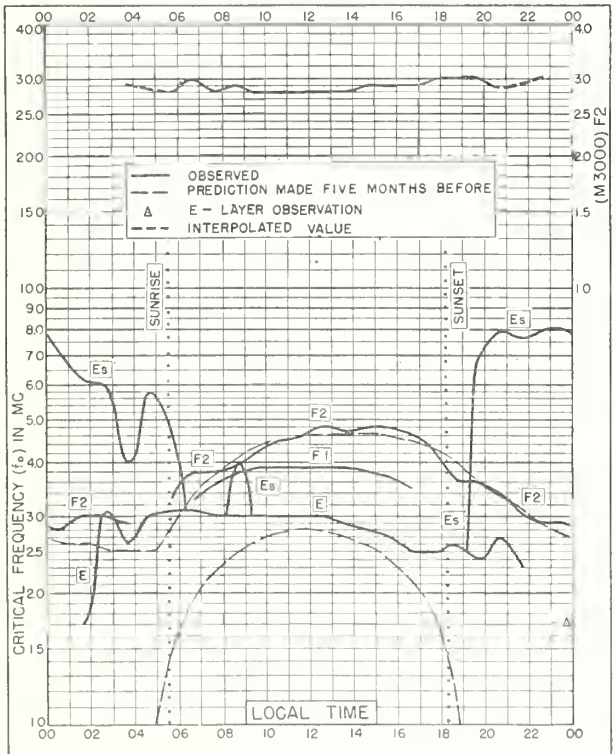


Fig.59. CHURCHILL, CANADA
58.8°N, 94.2°W SEPTEMBER 1953

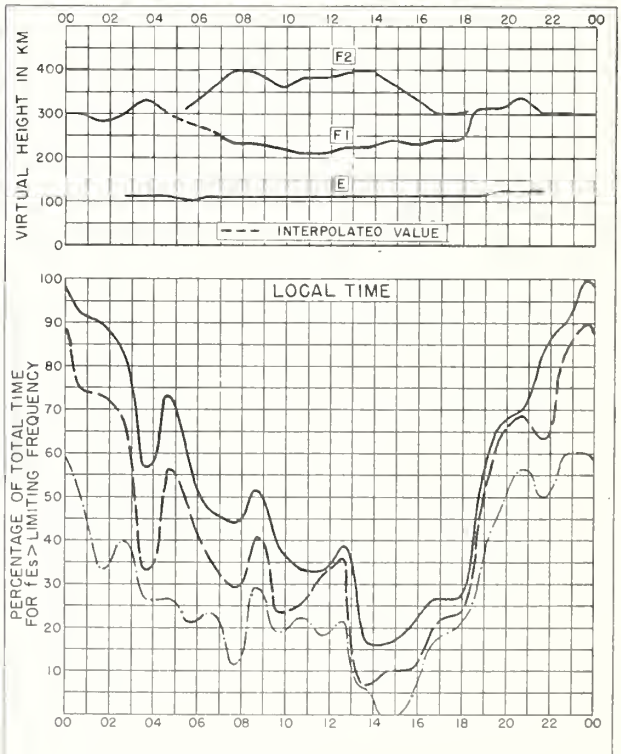


Fig.60. CHURCHILL, CANADA SEPTEMBER 1953

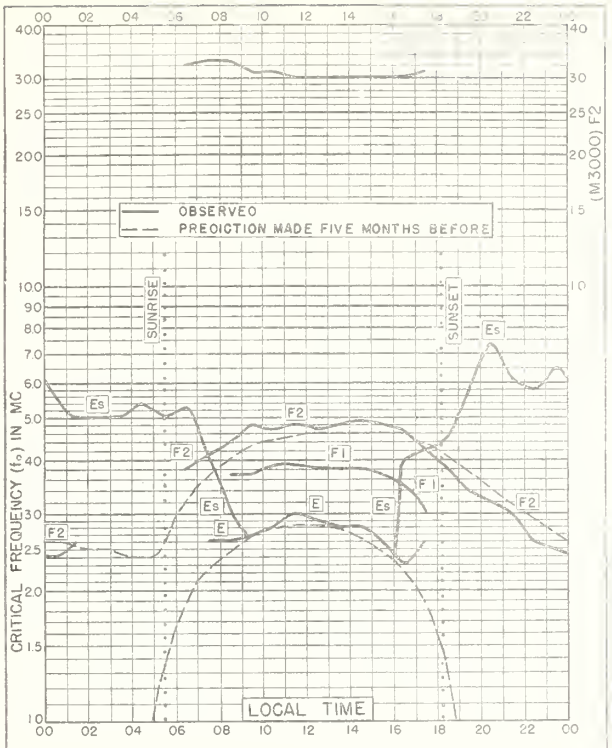


Fig.61. FORT CHIMO, CANADA
58.1°N, 68.3° W SEPTEMBER 1953

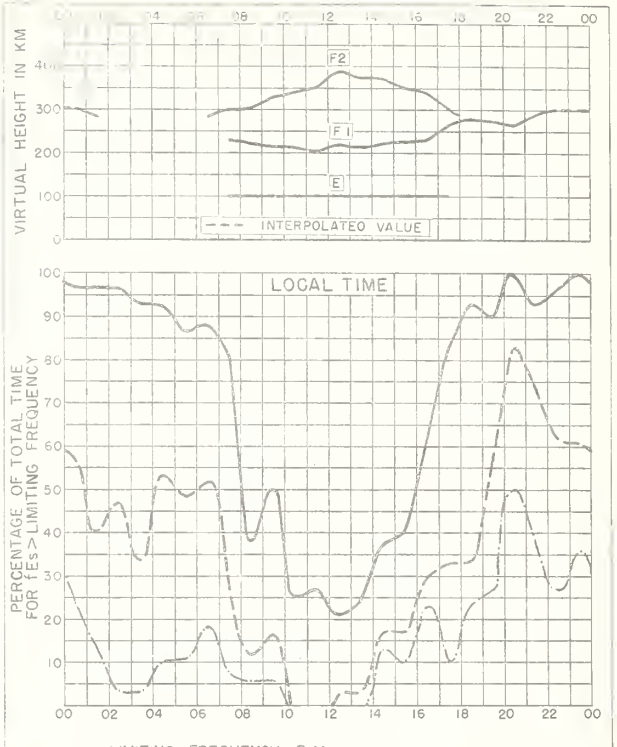


Fig. 62. FORT CHIMO, CANADA SEPTEMBER 1953

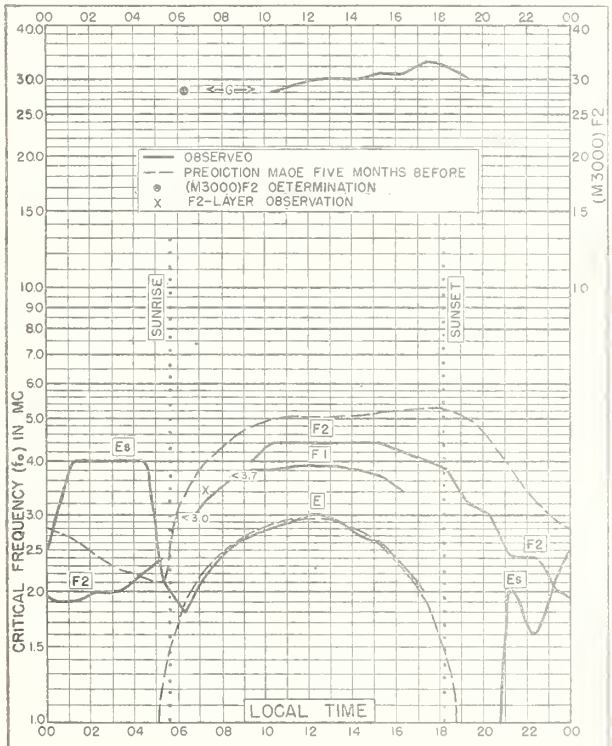


Fig. 63. PRINCE RUPERT, CANADA
54.3°N, 130.3° W SEPTEMBER 1953

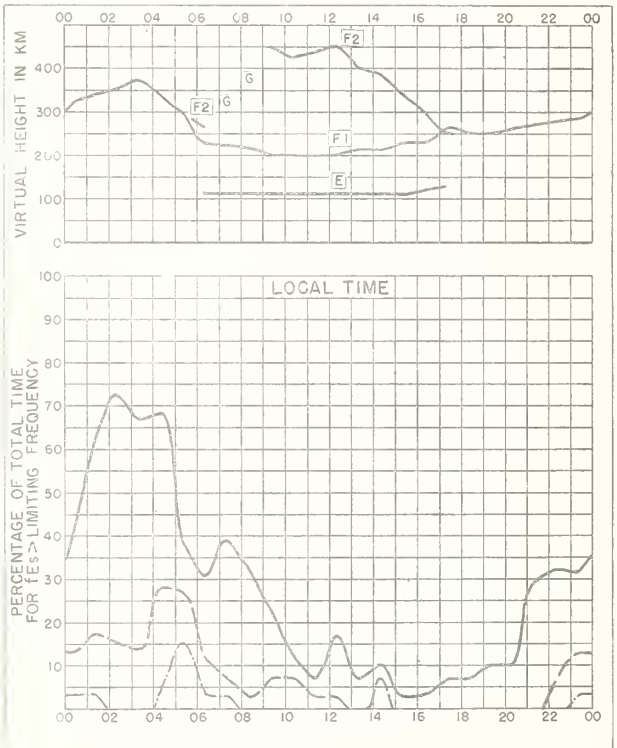


Fig. 64. PRINCE RUPERT, CANADA SEPTEMBER 1953

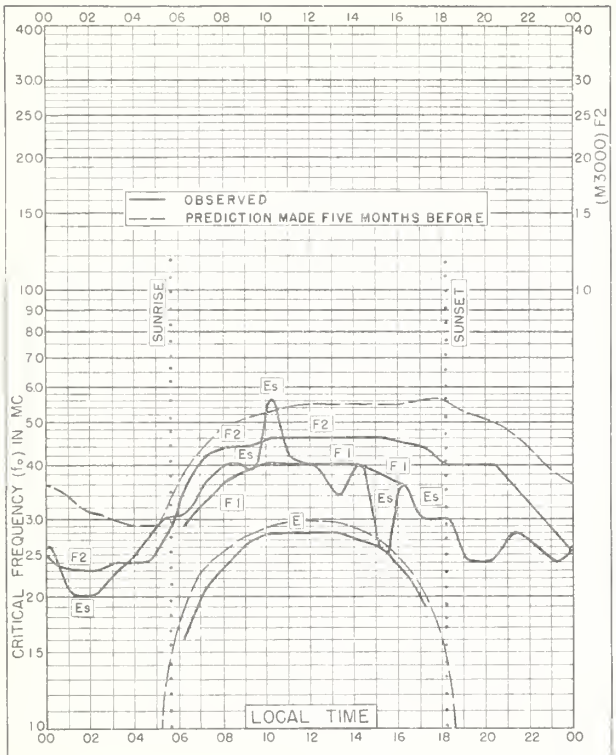


Fig. 65. ADAK, ALASKA
51.9°N, 176.6°W SEPTEMBER 1953

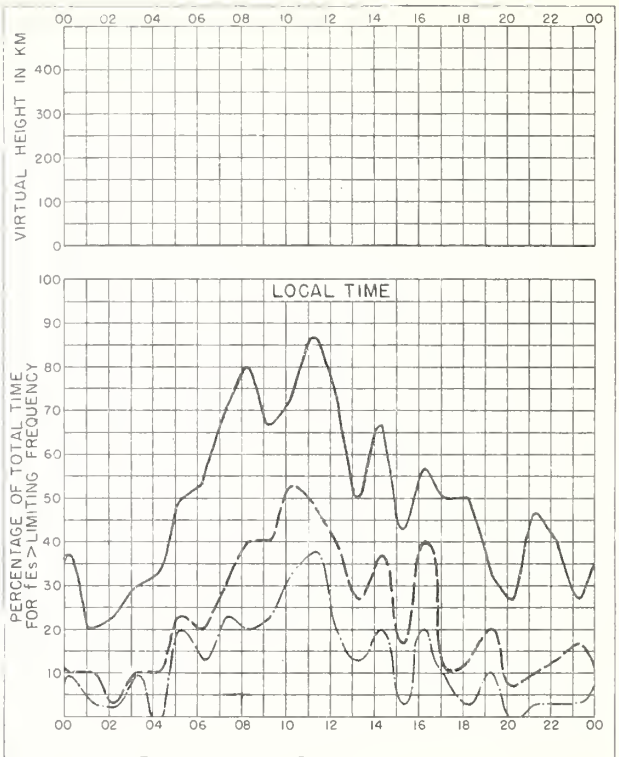
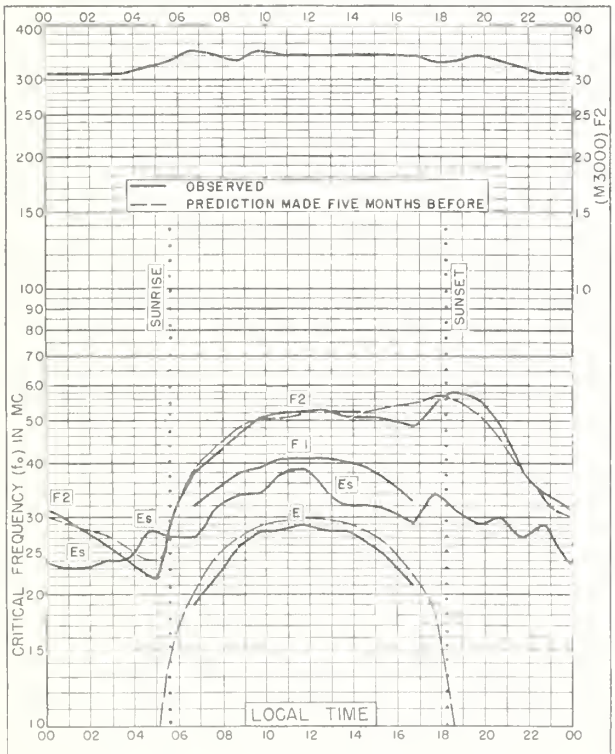


Fig. 66. ADAK, ALASKA SEPTEMBER 1953



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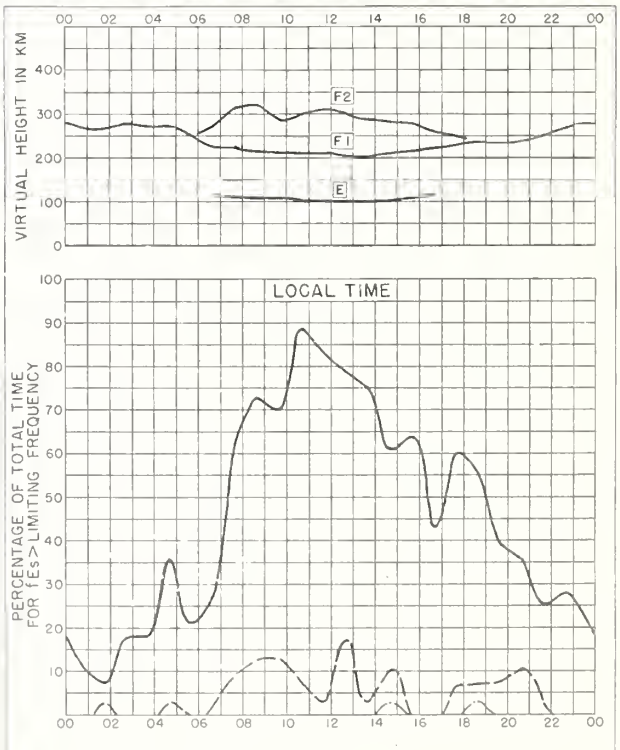

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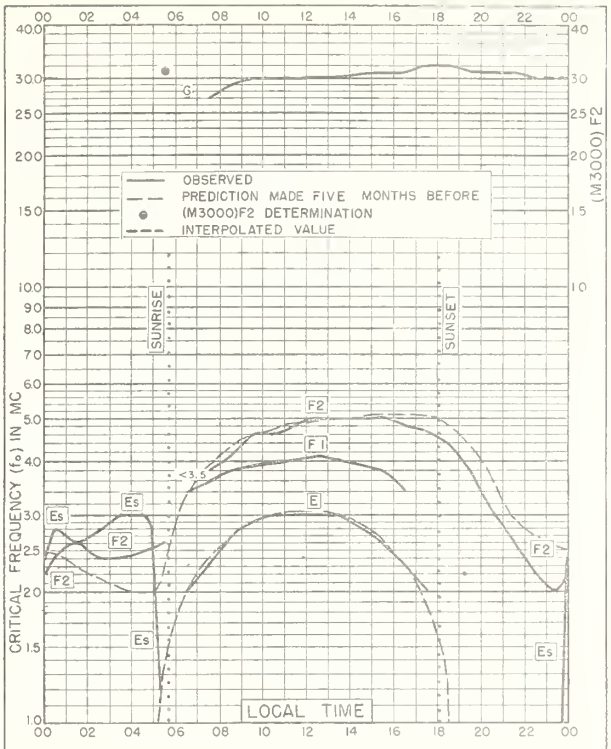

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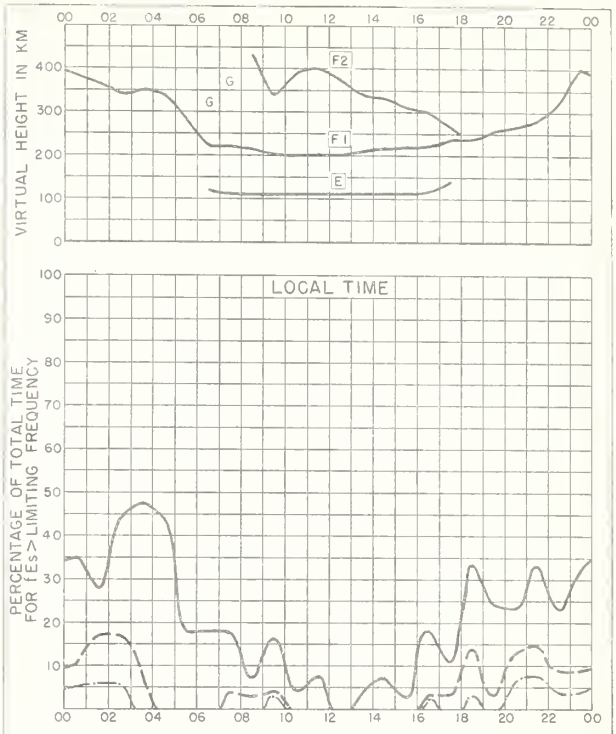

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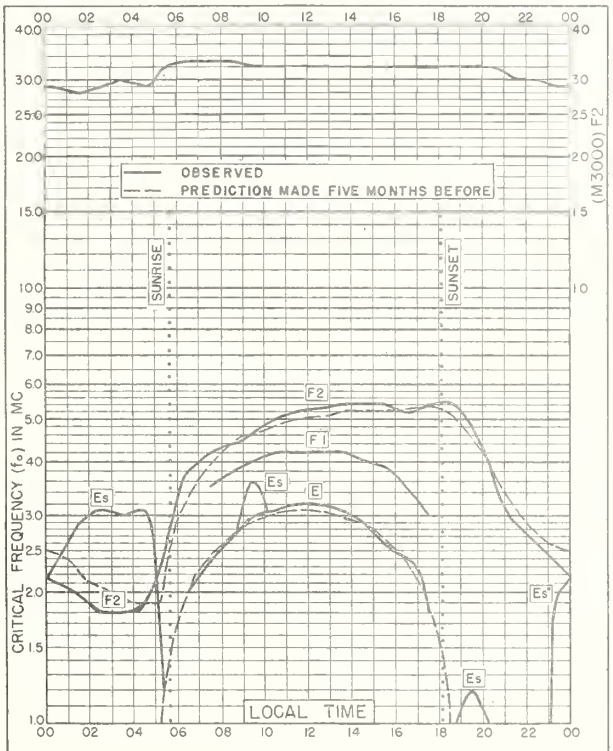

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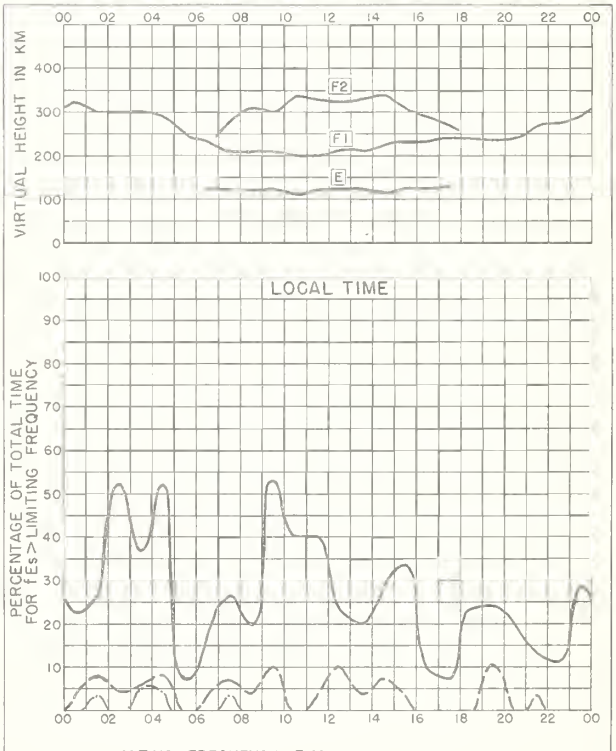

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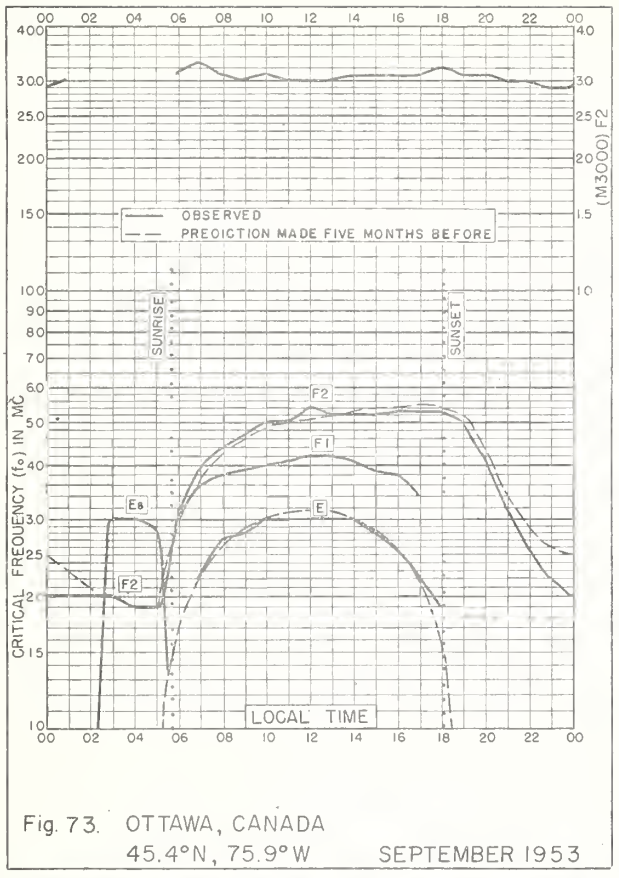

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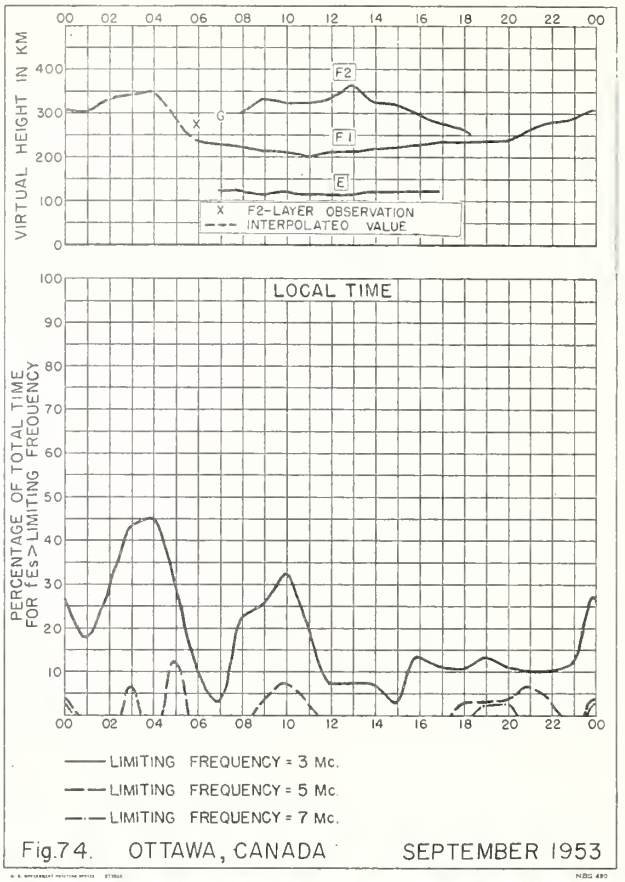

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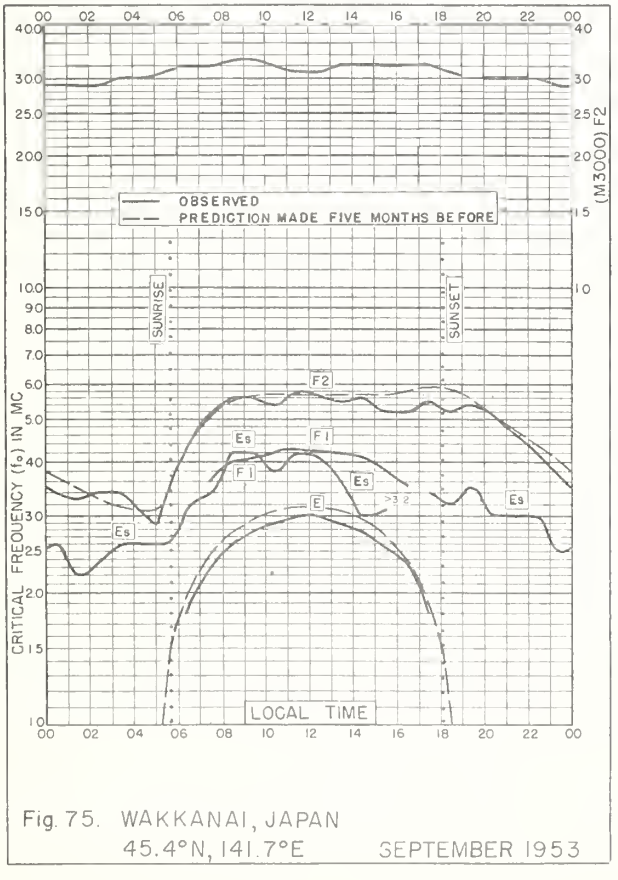

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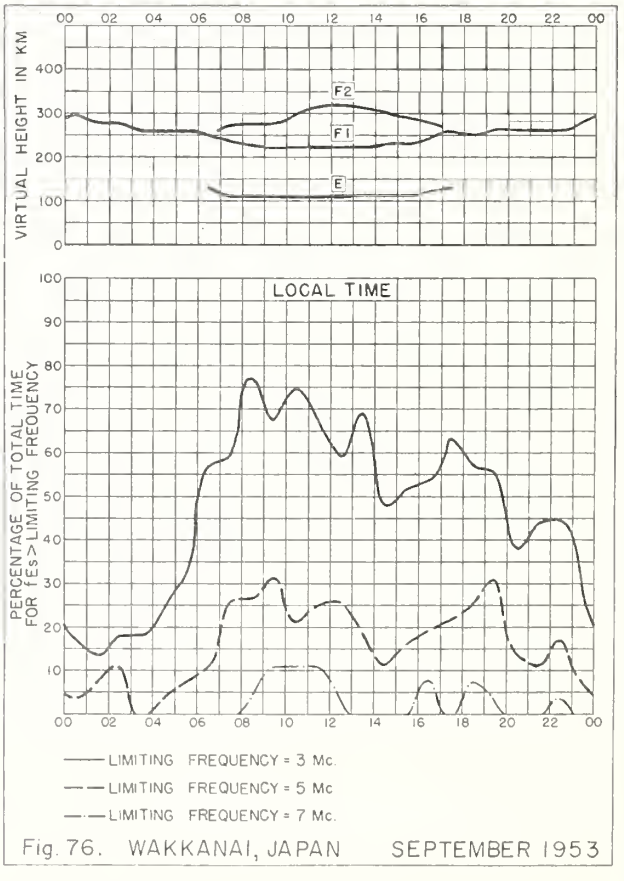

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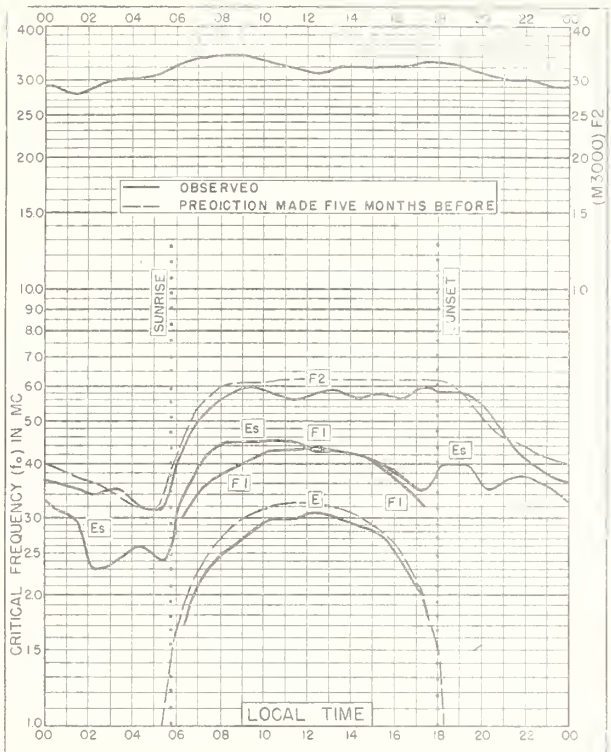

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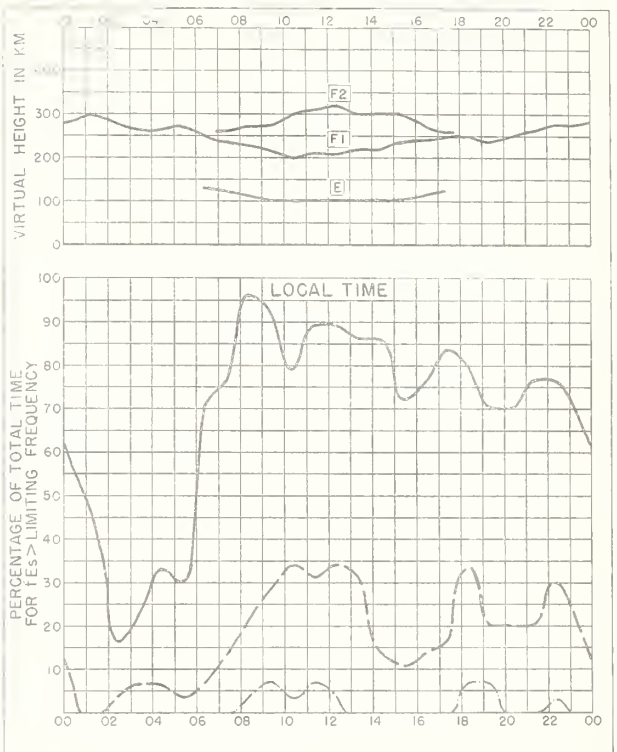

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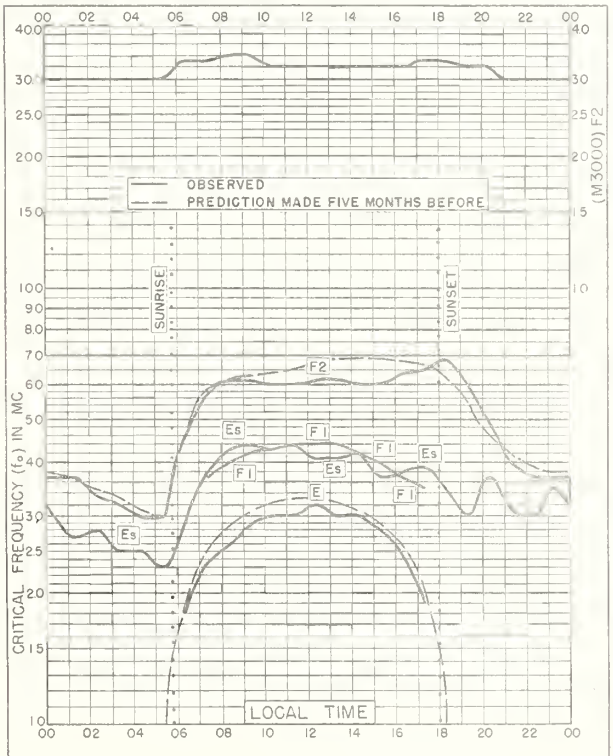

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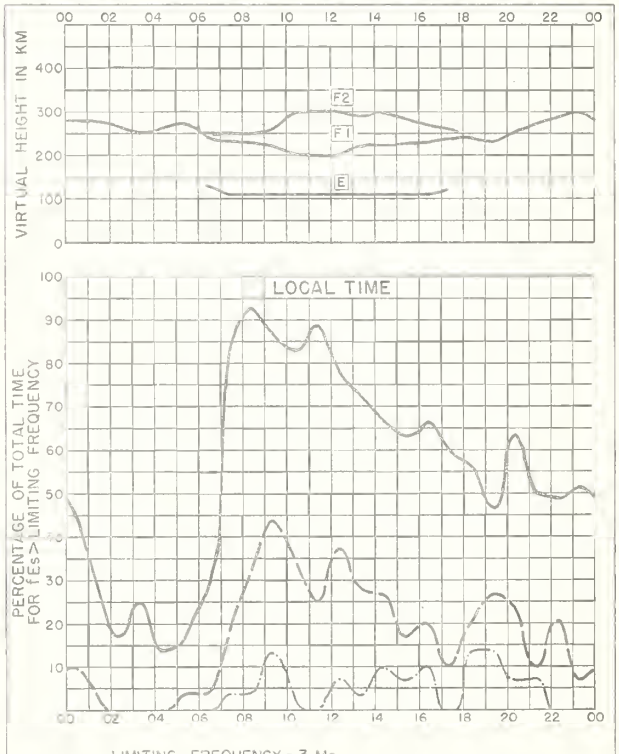

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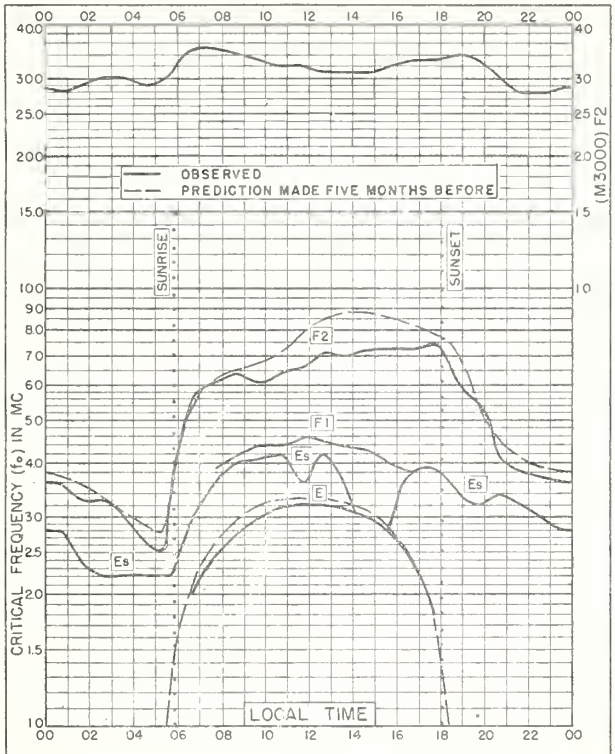

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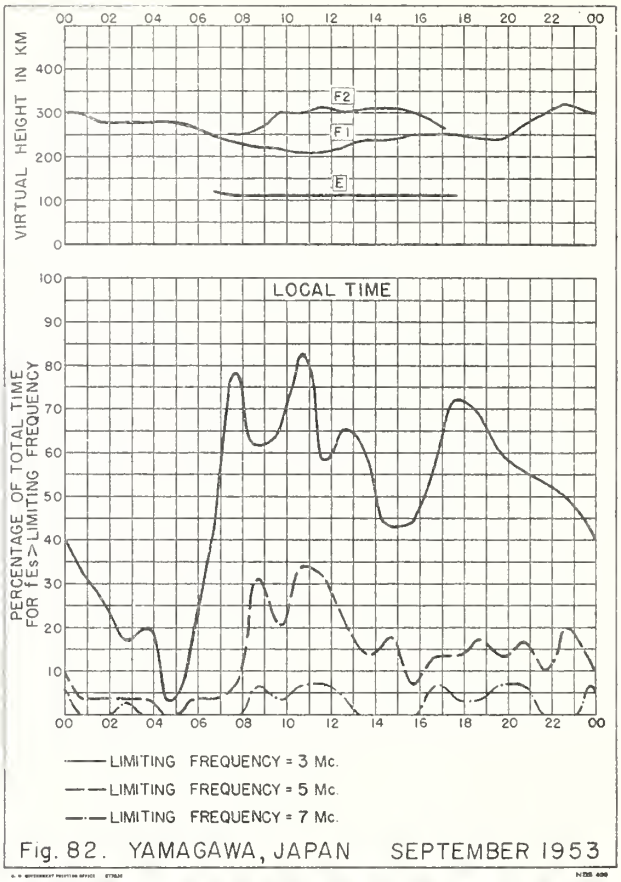

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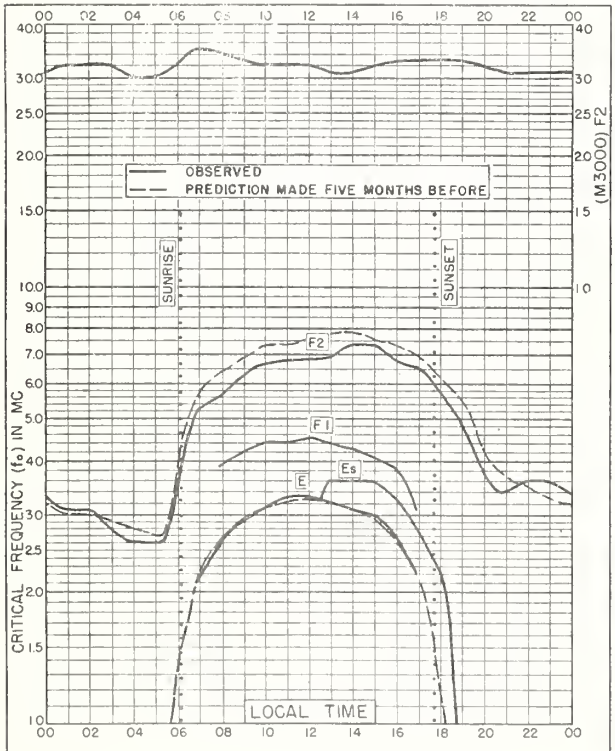

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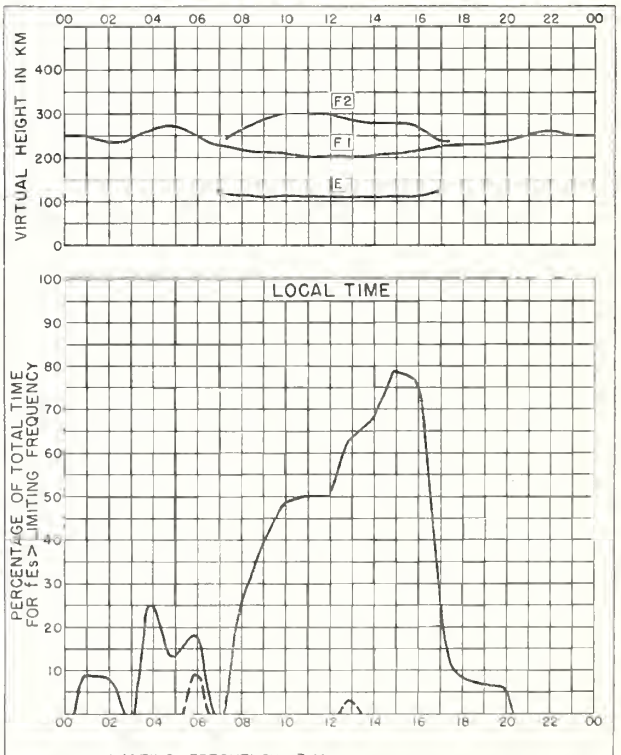

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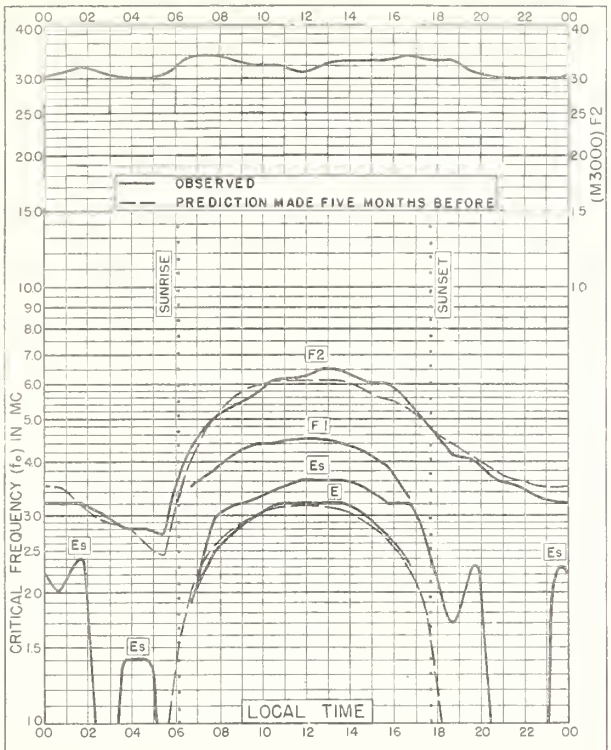

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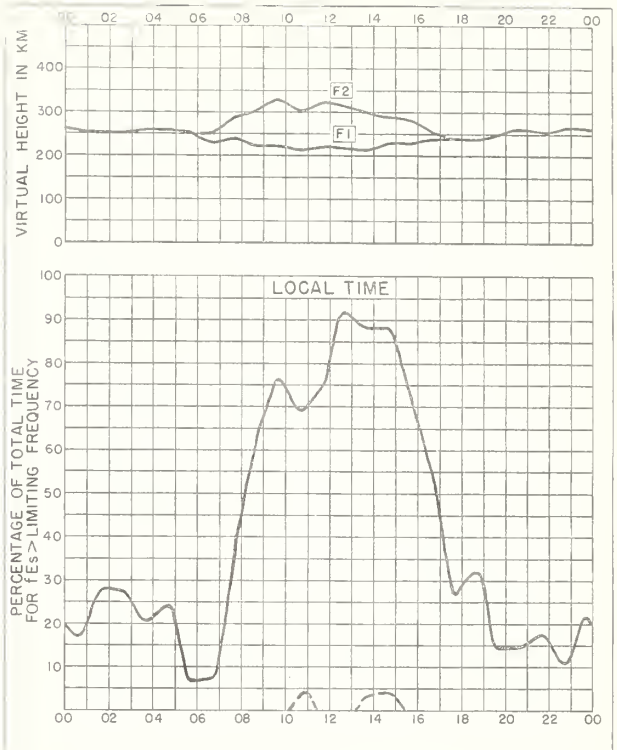

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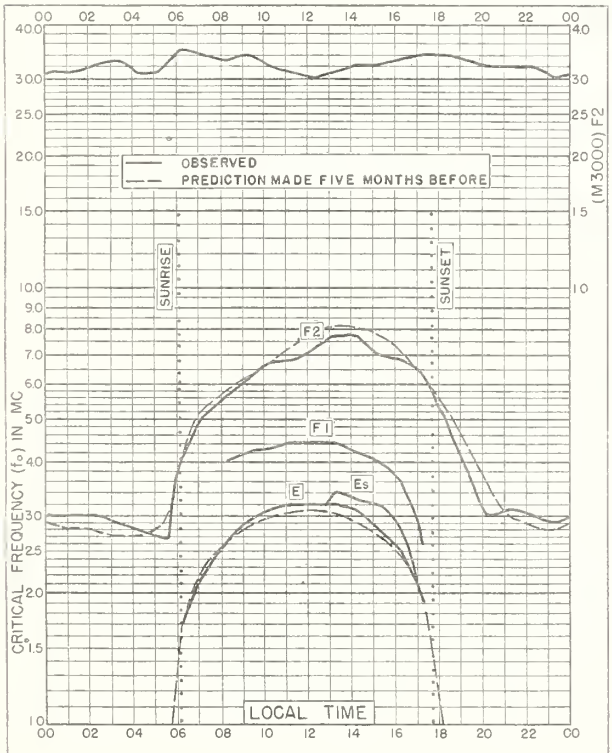

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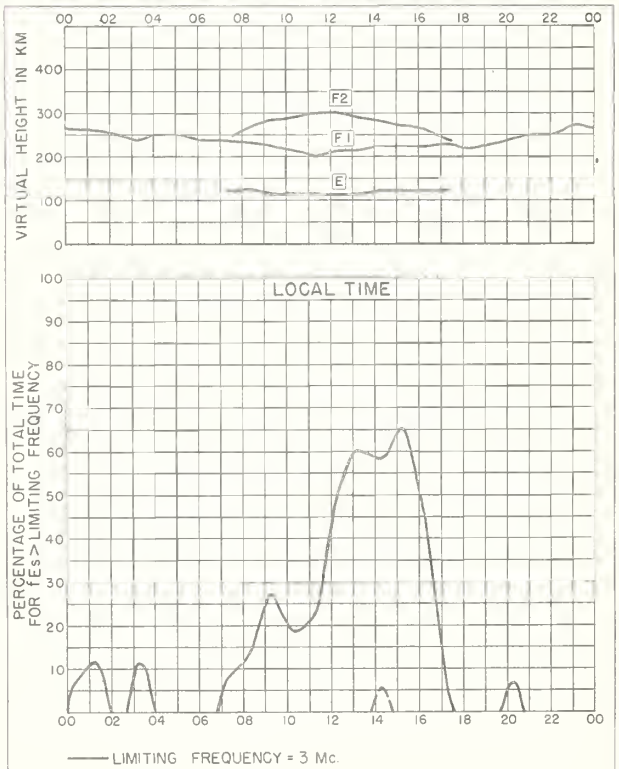

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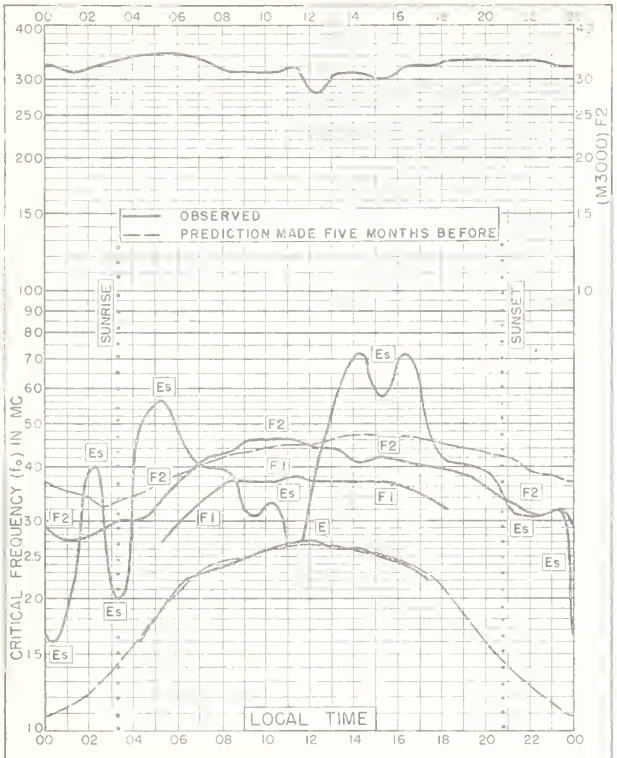

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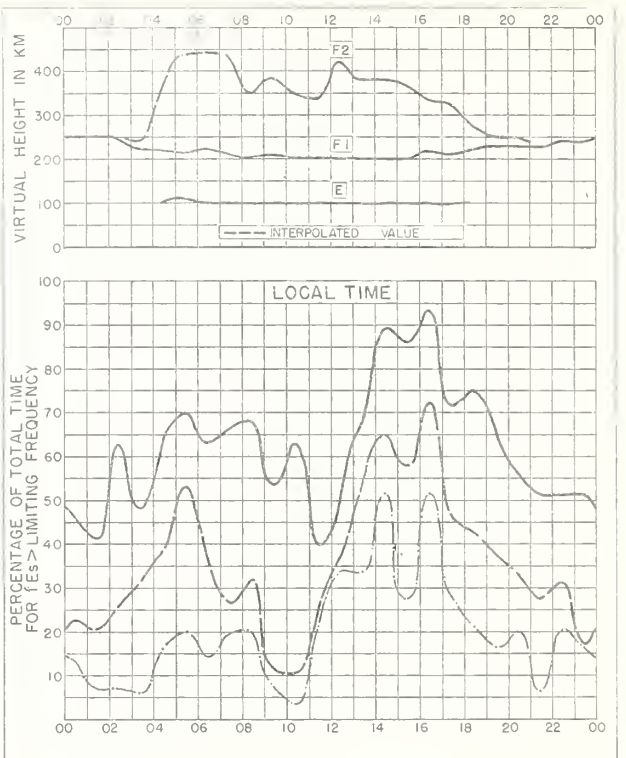

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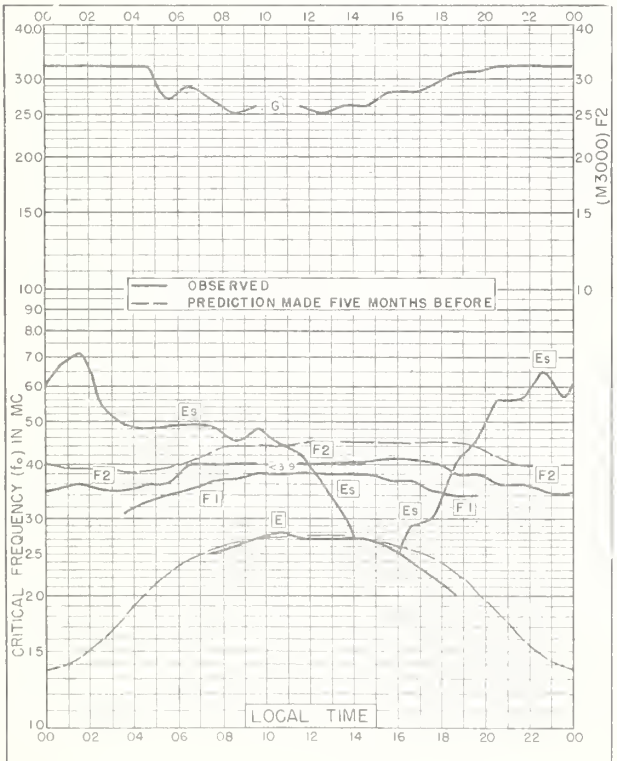

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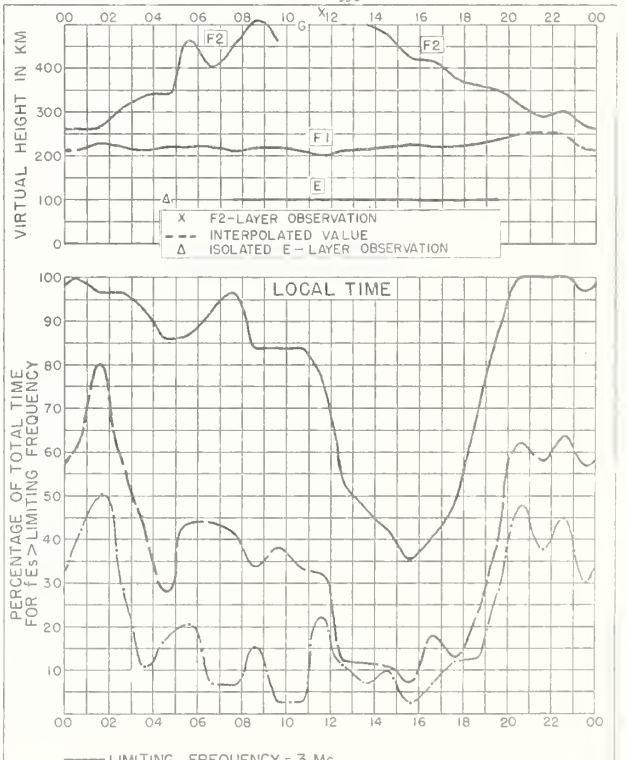

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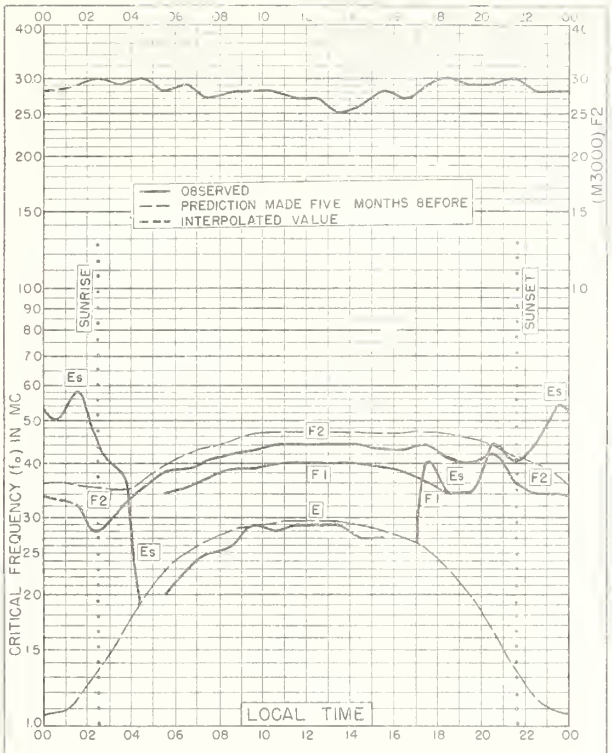

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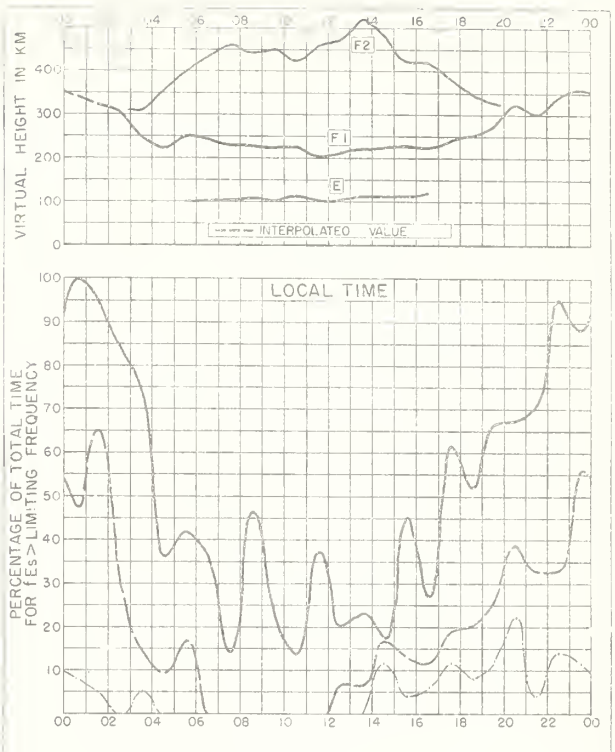

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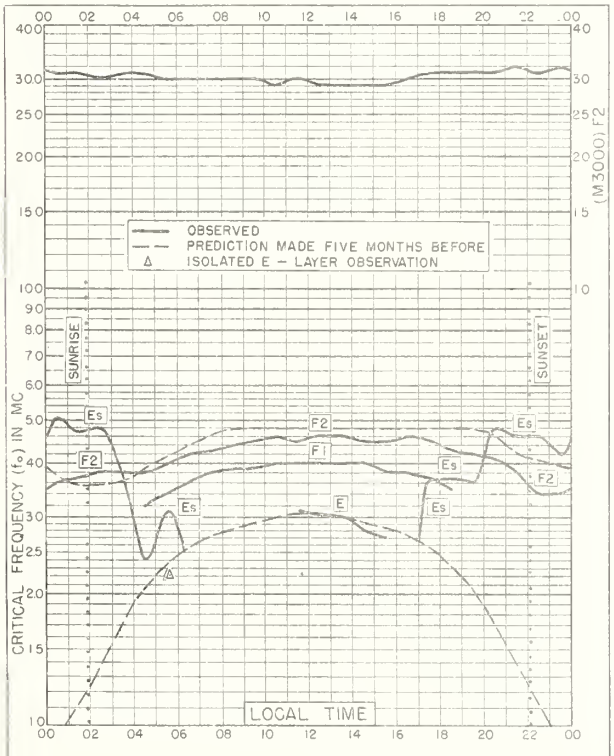

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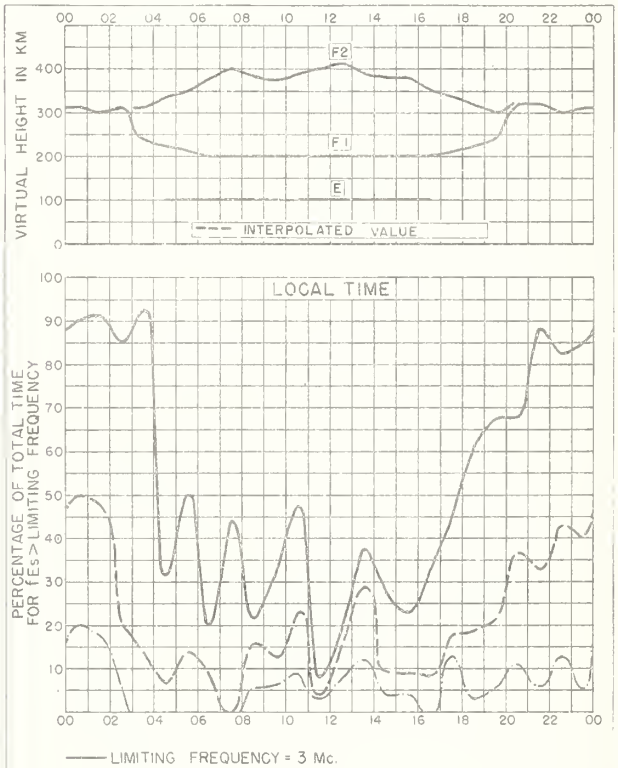

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CRPL and IRPL Reports

[A list of CRPL Section Reports is available from the Central Radio Propagation Laboratory upon request]

Daily:

Radio disturbance forecasts, every half hour from broadcast station WWV of the National Bureau of Standards. Telephoned and telegraphed reports of ionospheric, solar, geomagnetic, and radio propagation data.

Semiweekly:

CRPL—J. North Atlantic Radio Propagation Forecast (of days most likely to be disturbed during following month).

CRPL—Jp. North Pacific Radio Propagation Forecast (of days most likely to be disturbed during following month).

Semimonthly:

CRPL—Ja. Semimonthly Frequency Revision Factors For CRPL Basic Radio Propagation Prediction Reports.

Monthly:

CRPL—D. Basic Radio Propagation Predictions—Three months in advance. (Dept. of the Army, TB 11-499-, monthly supplements to TM 11-499; Dept. of the Navy, DNC 13 ( ) series; Dept. of the Air Force, TO 16-1B-2 series.)

CRPL—F. Ionospheric Data.

*IRPL—A. Recommended Frequency Bands for Ships and Aircraft in the Atlantic and Pacific.

*IRPL—H. Frequency Guide for Operating Personnel.

Circulars of the National Bureau of Standards:

NBS Circular 462. Ionospheric Radio Propagation.

NBS Circular 465. Instructions for the Use of Basic Radio Propagation Predictions.

Reports issued in past:

IRPL—C61. Report of the International Radio Propagation Conference, 17 April to 5 May 1944.

IRPL—G1 through G12. Correlation of D. F. Errors With Ionospheric Conditions. (G1, G3, available. Others out of print; see second footnote.)

IRPL—R. Nonscheduled reports:

R4. Methods Used by IRPL for the Prediction of Ionosphere Characteristics and Maximum Usable Frequencies.

R5. Criteria for Ionospheric Storminess.

**R6. Experimental Studies of Ionospheric Propagation as Applied to the Loran System.

R7. Second Report on Experimental Studies of Ionospheric Propagation as Applied to the Loran System.

R9. An Automatic Instantaneous Indicator of Skip Distance and MUF

R10. A Proposal for the Use of Rockets for the Study of the Ionosphere.

**R11. A Nomographic Method for both Prediction and Observation Correlation of Ionosphere Characteristics.

**R12. Short Time Variations in Ionosphere Characteristics.

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**R15. Predicted Limits for F2-Layer Radio Transmission Throughout the Solar Cycle.

**R17. Japanese Ionospheric Data—1943.

R18. Comparison of Geomagnetic Records and North Atlantic Radio Propagation Quality Figures—October 1943 Through May 1945.

**R21. Notes on the Preparation of Skip-Distance and MUF Charts for Use by Direction-Finder Stations. (For distances out to 4000 km.)

**R23. Solar-Cycle Data for Correlation with Radio Propagation Phenomena.

**R24. Relations Between Band Width, Pulse Shape and Usefulness of Pulses in the Loran System.

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IRPL—T. Reports on tropospheric propagation:

T1. Radar operation and weather. (Superseded by JANP 101.)

T2. Radar coverage and weather. (Superseded by JANP 102.)

CRPL—T3. Tropospheric Propagation and Radio-Meteorology. (Reissue of Columbia Wave Propagation Group WPG—5.)

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